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BUREAU OF MINES

VAN. H. MANNING, DIRECTOR

MINERS' SAFETY AND HEALTH ALMANAC
FOR 1919

Published in cooperation with
UNITED STATES PUBLIC HEALTH SERVICE

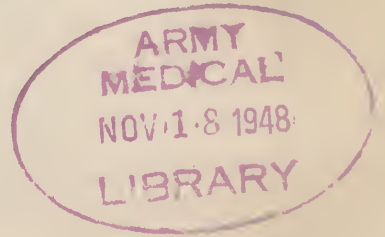
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COMPILED BY

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Assistant Surgeon, United States Public Health Service



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MINERS' SAFETY AND HEALTH ALMANAC.

By R. C. WILLIAMS.

TO THE MINER.

America must have coal and various minerals. These have been needed for carrying on the war; they will be needed in peace. We are striving to make the world a better place in which to live, and our Government needs the faithful and loyal help of every miner. Do your share! Work to your full capacity! America must have your help!

Our boys in France and on the sea are giving up their lives for the cause of Liberty. Help these gallant boys by supplying them with the needed minerals. Coal is necessary for our ships, for our industries, and the use of the people at home. Copper, lead, zinc, iron, and many other metals are needed in the many industries of this country.

Do not be a laggard, help in this great work. Do your duty as a miner, for in the words of President Wilson, "The work of the world waits on the miner." It is the proud privilege of every miner to do his utmost for America.

Good health is essential for the miner in order that he may work to full capacity, hence it is of prime importance to safeguard the health of the miner and his family. Preventable diseases among miners must be reduced to the lowest possible number. The miner himself can help greatly to prevent disease by keeping the best possible sanitary condition among the members of his family and at his home.

Accidents, which cause loss of life or serious injury, must also be prevented. Most accidents are preventable; all are costly. Each and every miner should cooperate with his fellow workers and with the operators and bring the number of mine accidents in America to the lowest number possible.

Work steadily and efficiently. Increase your tonnage.

MINERS' CONSUMPTION.

Miners' consumption is caused by breathing in small dust particles which penetrate the lung. The dust that results from the dry drilling of hard rock, from blasting, or from shoveling, or from repairing timber, or from any other work that stirs up dust that has settled around working places, may cause miners' consumption. The dust particles that penetrate the lung are very small, averaging $1/250$ to $1/1000$ of an inch in diameter. Rocks containing a large amount of silica, such as quartz, flint, or granite, produce this dangerous dust.

This hard rock dust irritates and injures the lungs, so that they get harder and stiffer, and can not expand properly. As a result the miner gradually gets short-winded on exertion; this short wind grows worse as long as he continues to work in hard rock dust. Finally his wind gets so bad that he can do no work at all. He may look well and feel well, but as soon as he exerts himself he can do nothing; he has the miners' consumption.

It takes a long time to get this disease, depending on the steadiness with which a man works underground and on the hardness of the rock. In very hard rock a man may have an advanced case after 5 or 10 years of steady work. In medium hard rock, or where a man does not work steadily, he may be in fair condition after 10 to 20 years. All underground workers may get the disease.

Men who have miners' consumption are very liable to contract pneumonia and tuberculosis (regular or "catching" consumption). When a case of miners' consumption is far advanced, tuberculosis is almost sure to follow.

The only remedy for miners' consumption is to quit underground work and to work out of doors. If the disease is not too far advanced the lungs will clear up and the wind will improve. A rest of varying length may be necessary. The patient should live and sleep in the open air as much as possible. Where tuberculosis has resulted the patient should go to a sanitarium.

Miners' consumption can be prevented by the use of water machines or sprays. Sprays are often "messy," but it is better to put up with that than to get the miners' consumption. Where shoveling, timber repairing, and other work tend to cause much dust to rise into the air the place should be sprinkled enough to keep the dust down. It is easier to prevent miners' consumption than to cure it.

A. J. LANZA,

Passed Assistant Surgeon, United States Public Health Service.

Don't stop saving food.

First Month.

JANUARY.

31 Days.

MOON'S PHASES.		EASTERN TIME.		To obtain moon's phases in— Central time subtract 1 hour. Mountain time subtract 2 hours. Pacific time subtract 3 hours.	This table is calculated for WASHINGTON, D.C., Vir- ginia, Kentucky, Missouri, Kansas, Colorado, Utah, Nevada, and central Cali- fornia. Exact time for rising and setting of sun may vary 2 to 15 minutes, more or less, from this table in other sec- tions of the United States, depending on the parallel of latitude upon which a given place is situated.
		D.	H. M.		
New Moon.....		2	3 24 A. M.		
First Quarter.....		9	5 55 A. M.		
Full Moon.....		16	3 44 A. M.		
Last Quarter.....		23	11 22 P. M.		
New Moon.....		31	6 7 P. M.		

Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Wed.	Begin the year right; pledge allegiance to America.	7. 19	4. 48
2	Thu.	Consumption is catching.	7. 19	4. 49
3	Fri.	A little cough may end in a coffin.	7. 19	4. 50
4	Sat.	A neglected cold is dangerous.	7. 19	4. 51
5	Sun.	America needs loyal miners.	7. 19	4. 52
6	Mon.	Keep down dust; safety first.	7. 19	4. 53
7	Tue.	Report communicable diseases to local health officer.	7. 19	4. 54
8	Wed.	Germs are the seeds of disease.	7. 19	4. 54
9	Thu.	Rock dust irritates the lungs.	7. 19	4. 55
10	Fri.	Avoid whisky; it lowers the vitality.	7. 19	4. 56
11	Sat.	Some cows have tuberculosis; their milk is dangerous.	7. 19	4. 57
12	Sun.	Miners' consumption is caused by rock dust.	7. 18	4. 58
13	Mon.	Have the doctor examine you at regular intervals	7. 18	4. 59
14	Tue.	Sleep with plenty of fresh air in the room.	7. 18	5. 01
15	Wed.	Careless spitting spreads consumption.	7. 18	5. 02
16	Thu.	The lungs are as fragile as a sponge; dust chokes them.	7. 17	5. 03
17	Fri.	"Private health is public welfare."	7. 17	5. 04
18	Sat.	Miners' consumption is preventable.	7. 16	5. 05
19	Sun.	Avoid the dusty type of drill machine.	7. 16	5. 06
20	Mon.	420 out of 733 quartz miners examined at Joplin, Mo., had miners' consumption.	7. 16	5. 07
21	Tue.	Is your working place well ventilated?	7. 15	5. 08
22	Wed.	"Public health is our greatest national resource."	7. 14	5. 09
23	Thu.	Siliceous rock dust is dangerous dust.	7. 14	5. 10
24	Fri.	United Mine Workers of America organized, 1890.	7. 13	5. 12
25	Sat.	Harwick mine disaster, Cheswick, Pa., 1904; 179 deaths.	7. 13	5. 13
26	Sun.	That pain in your chest may be from rock dust.	7. 12	5. 14
27	Mon.	Samuel Gompers, President Am. Fed. Labor, born 1850.	7. 11	5. 15
28	Tue.	Buy a Government Thrift Stamp.	7. 10	5. 16
29	Wed.	A miner with consumption may infect his own family.	7. 10	5. 17
30	Thu.	Strive to improve; be a better miner.	7. 09	5. 18
31	Fri.	Dust, disaster, and disease go hand in hand.	7. 08	5. 20

Are you one hundred per cent American? Prove it by your
loyalty.

RESPONSIBILITY OF THE MINER.

The miner, in common with other workers, has two dangers which threaten him nearly all the time. One is injury and the other is sickness. Either one means loss of time, loss of money, suffering for him, and perhaps for his family, and even death, and a widow and children left without income. Miners are coming to realize that most accidents are unnecessary, that they can be prevented, and that the "safety-first" movement has lessened them enormously. But most miners do not know that sickness is just as preventable as accident—often more so. Many risks, to which the miner is liable, can not entirely be done away with, and some accidents will happen in spite of the utmost care; but there need be absolutely no risk of getting some of the diseases that affect miners. If proper care and attention are paid to the means of preventing sickness, the miner can avoid them as easily as he can avoid accidents.

In accidents the cause and the remedy are often easy to see. For example, a bar which was supposed to be a guard for an opening is left down; a man walks by, falls in, and is hurt. The cause of the accident, the result, the remedy, and their relation one to another are plain. In many cases of sickness, the cause is not evident to most men, because they do not stop to consider how the disease is spread, and because they fail to realize the ease with which it may be prevented. Once this is understood, the problem of preventing sickness will be simplified, just as the problem of preventing accidents has been simplified, and improvement will follow preventive measures in this case as surely as it has in the other.

The "safety-first" movement has made the miner feel that each man is responsible not only for his own safety, but also for the safety of all around him. The same principle is true in preventing sickness. Each person is responsible not only for his own health, but also for the health of others. When he neglects or breaks one of the common-sense rules of health, he endangers not only himself, but his family and the men who work near him. This circular mentions some diseases that every year cause much sickness and death among miners, and it describes the precautions that should be taken to prevent such diseases from starting and spreading.

A. J. LANZA,

United States Public Health Service.

J. H. WHITE,

Federal Bureau of Mines.

**Buy Government Liberty Bonds and become a stockholder
in the biggest company in the world.**

MOON'S PHASES.

EASTERN TIME.

	D.	H.	M.	To obtain moon's phases in—
First Quarter.....	7	1	52 P. M.	Central time subtract 1 hour.
Full Moon.....	14	6	38 P. M.	Mountain time subtract 2 hours.
Last Quarter.....	22	8	47 P. M.	Pacific time subtract 3 hours.

This table is calculated for WASHINGTON, D. C., Virginia, Kentucky, Missouri, Kansas, Colorado, Utah, Nevada, and central California. Exact time for rising and setting of sun may vary 2 to 15 minutes, more or less, from this table in other sections of the United States, depending on the parallel of latitude upon which a given place is situated.

Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Sat.	Help America make the world safe for democracy. Save food.	7.07	5.21
2	Sun.	Ground Hog Day.	7.06	5.22
3	Mon.	"Bad food has killed thousands, bad water tens of thousands, bad air hundreds of thousands."	7.05	5.23
4	Tue.	Avoid a drinking cup used in common.	7.04	5.24
5	Wed.	The use of whisky leads to pneumonia.	7.03	5.25
6	Thu.	A stitch in the undershirt saves a stitch in the side.	7.02	5.27
7	Fri.	Protect yourself with plenty of clothing.	7.01	5.28
8	Sat.	Good food, proper clothing, and right living protect against pneumonia.	7.00	5.29
9	Sun.	Keep out pneumonia by keeping up the windows.	6.59	5.30
10	Mon.	Too much fresh air is just enough.	6.58	5.31
11	Tue.	Prolonged exposure to cold and wet is dangerous.	6.57	5.32
12	Wed.	Gold discovered in Australia in 1851.	6.56	5.33
13	Thu.	A. B. C. of safety—Always Be Careful.	6.55	5.35
14	Fri.	Valentine Day.	6.54	5.36
15	Sat.	Fresh air is Nature's finest gift.	6.52	5.37
16	Sun.	Ventilate or vacate.	6.51	5.38
17	Mon.	Every foreign-born miner should learn to speak English.	6.50	5.39
18	Tue.	Do not hurry when eating; eat slowly.	6.49	5.40
19	Wed.	Fresh air is needed in the home as well as in the mine.	6.47	5.41
20	Thu.	Virginia City (Ala.), mine disaster, 1905, 108 killed.	6.46	5.42
21	Fri.	Be punctual at work.	6.45	5.43
22	Sat.	George Washington's Birthday.	6.43	5.45
23	Sun.	Better be safe than sorry.	6.42	5.46
24	Mon.	Sleep with the windows open; it means protection against pneumonia.	6.41	5.47
25	Tue.	Dig an extra ton of coal to-day.	6.39	5.48
26	Wed.	Report communicable diseases to local health officer.	6.38	5.49
27	Thu.	Buy War-Savings Stamps.	6.36	5.50
28	Fri.	J. P. White, ex-President U. S. Mine Workers, born, 1870.	6.36	5.51

TESTIMONIAL.

(With apologies to the patent medicine almanac.)

I got in poor health about six years ago and became so weak that I could not carry a half bushel of potatoes on my shoulder. Patent medicines failed to help me, although I tried everything. * * * Finally a kind friend advised me to consult his family doctor. * * * This doctor * * * found out what was the matter with me, and now I am in rugged health. Besides it didn't cost me nearly as much as I had paid out for patent medicines during those six years.

KANSAS HEALTH BULLETIN.

PERIODICAL PHYSICAL EXAMINATION.

If you find a dangerous place in the mine, a piece of loose rock, a live wire, or bad air, your first thought is safety; consequently you avoid these places and protect yourself from injury.

Why not apply the safety first principle to diseases?

Many serious diseases develop so slowly that we do not recognize them. Regular physical examination from time to time would warn us of the approaching danger, when it can be easily checked or prevented.

One out of four of the civilians who presented themselves for the officers' training camps, was sick and did not know it.

Safety first with diseases! Have the doctor examine you at regular intervals whether sick or well. For full particulars see your family physician.

PROTECTION AGAINST PNEUMONIA.

Pneumonia occurs in all climates, at all seasons, and affects all ages. It is more common in the seasons of bad weather, winter and spring.

Prolonged exposure to cold, together with lowered vitality, is a frequent cause. Anything that will lower the power of resistance may bring on pneumonia. The secretion coughed and spit up by a pneumonia patient contains the pneumonia germs. All such secretion should be destroyed by burning.

A warm, sanitary washhouse is an excellent aid in preventing pneumonia among miners. In camps where there is no washhouse, men coming to the surface should protect themselves in cold weather by putting on overcoats or some other additional clothing.

The use of alcohol, overwork, loss of sleep, mental strain, poor food, or exposure may help to bring on an attack of this disease.

To protect against pneumonia:

Avoid unnecessary contact with pneumonia patients.

Wear sufficient clothing.

Have fresh air in sleeping room.

Avoid alcoholic drinks.

Keep in good physical condition.

Avoid unnecessary exposure.

NO HEALTH DEPARTMENT, STATE OR LOCAL,
CAN EFFECTIVELY PREVENT OR CONTROL DISEASE
WITHOUT KNOWLEDGE OF WHEN, WHERE, AND
UNDER WHAT CONDITIONS CASES ARE OCCURRING.

PUBLIC HEALTH REPORTS,
United States Public Health Service.

America will mean more to you when you own a Liberty Bond.

Third Month.

MARCH.

31 Days

MOON'S PHASES.	EASTERN TIME.			To obtain moon's phases in— Central time subtract 1 hour. Mountain time subtract 2 hours. Pacific time subtract 3 hours
	D.	H.	M.	
New Moon.....	2	6	11 A. M.	
First Quarter.....	8	10	14 P. M.	
Full Moon.....	16	10	41 A. M.	
Last Quarter.....	24	3	33 P. M.	
New Moon.....	31	4	4 P. M.	

This table is calculated for WASHINGTON, D. C., Virginia, Kentucky, Missouri, Kansas, Colorado, Utah, Nevada, and central California. Exact time for rising and setting of sun may vary 2 to 15 minutes, more or less, from this table in other sections of the United States, depending on the parallel of latitude upon which a given place is situated.

Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Sat.	America is depending on her patriotic miners.	6.34	5.52
2	Sun.	Layland (W. Va.), mine explosion, 1915, 112 killed.	6.32	5.53
3	Mon.	To prevent pellagra, eat the right kind of food.	6.32	5.54
4	Tue.	President Wilson's second inaugural, 1917.	6.29	5.55
5	Wed.	Save food, serve America.	6.28	5.56
6	Thu.	A toothbrush is necessary to health.	6.27	5.57
7	Fri.	Milk is the ideal food.	6.25	5.58
8	Sat.	Bad teeth endanger your child's health.	6.23	5.59
9	Sun.	An apple a day keeps the doctor away.	6.22	6.00
10	Mon.	Clean teeth do not decay.	6.20	6.01
11	Tue.	Foreign-born miners should learn English.	6.19	6.02
12	Wed.	Neuralgia is often caused by defective teeth.	6.17	6.03
13	Thu.	Eat a balanced diet.	6.16	6.04
14	Fri.	A tooth in the head is worth two in the hand.	6.14	6.05
15	Sat.	Plenty of ripe fruit is healthful.	6.13	6.06
16	Sun.	Visit your dentist regularly.	6.11	6.07
17	Mon.	Eat happily; forget your worries at mealtime.	6.09	6.08
18	Tue.	Shun quack medicines; get the best medical aid.	6.08	6.09
19	Wed.	Stand by the President, for we are Americans all.	6.06	6.10
20	Thu.	Do you have toothbrush drill in your home?	6.05	6.11
21	Fri.	Chew your food well.	6.03	6.12
22	Sat.	Pellagra should not be treated by patent medicines.	6.02	6.13
23	Sun.	Buy Thrift Stamps.	6.00	6.14
24	Mon.	Eat well and wisely.	5.58	6.15
25	Tue.	Be cleanly; use your toothbrush.	5.57	6.16
26	Wed.	Every birth and death should be recorded.	5.55	6.17
27	Thu.	Indigestion often results from bad teeth.	5.54	6.18
28	Fri.	Report contagious diseases to health officer.	5.52	6.19
29	Sat.	Safety first; keep your teeth clean.	5.51	6.20
30	Sun.	Pellagra is preventable.	5.49	6.21
31	Mon.	Sanitation is cleanliness.	5.47	6.22

SMALLPOX.

Smallpox is one of the oldest diseases, yet one of the easiest to prevent. Vaccination is the simple means of preventing smallpox. Physicians and nurses have no other protection against the disease. Every person should be vaccinated against smallpox. Every child should be vaccinated by the time it reaches the age of one year. No child should be allowed to enter school until successfully vaccinated.

GROW A GARDEN.

As loyal Americans we must join the nation-wide movement to increase and conserve the country's food crop. Miners and their families can render patriotic service by planting and raising a garden wherever possible. By growing a garden not only can a miner render valuable service, but also he can make the family grocery bill much smaller. Fresh vegetables are a pleasing and healthful variety for the miner's dinner pail.

Many mining camps have the necessary space for gardens, and every effort should be made to use this space. The food produced in the garden, if more than the family needs at the time, should not be allowed to waste. The surplus should be dried, or canned, and stored away for future use.

Much has already been done to increase the food supply by planting gardens. Join the movement and do your part.

An inexperienced person may succeed with a garden by giving it proper attention, for vegetables are easily grown. Several crops may be grown on the same spot in the same season.

Early radishes, onions, or peas may be followed by beans, corn, pepper, or tomatoes. Potatoes should be a part of the crop of every garden.

A garden 60 feet by 100 feet with intensive cultivation can be made to produce plenty of vegetables for the average family of five.

SAFE DRINKING WATER FOR MINING CAMPS.

Every mining camp should have enough of safe drinking water. The water supply of a camp may be individual or public; individual when each family or group of families uses water from a surface well or a spring; public when all the water in camp comes from a common source, as a reservoir, deep well, or stream.

Surface wells in mining towns are unsafe because the surface drainage and pollution makes them so. Wells near insanitary privies are especially dangerous: water from such wells should be boiled before being used for drinking.

A water supply for a mining camp which comes from a pond or stream should be allowed to settle, be filtered, and be given chemical treatment, if necessary, to render it safe for drinking. A plant for the purification of drinking water by the addition of hypochlorite of lime can be installed at very slight cost.

The purity of drinking water is best determined by laboratory examination. Clear, sparkling water, although seemingly pure, may be grossly polluted with human filth. Any water may be rendered fit for use by boiling.

Conserve food. Everyone must make some sacrifice for America.

Fourth Month.

APRIL.

30 Days.

MOON'S PHASES. EASTERN TIME.

	D.	H.	M.	
First Quarter.....	7	7	38 A. M.	To obtain moon's phases in—
Full Moon.....	15	3	25 A. M.	Central time
Last Hour.....	23	6	21 A. M.	subtract 1 hour.
New Moon.....	30	0	30 A. M.	Mountain time
				subtract 2 hours.
				Pacific time
				subtract 3 hours.

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Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Tue.	All Fools' Day. Don't be foolish, safety first.	5.46	6.23
2	Wed.	Save food, millions are starving.	5.44	6.24
3	Thu.	Less haste, more care.	5.43	6.25
4	Fri.	Cleanliness is akin to godliness.	5.41	6.26
5	Sat.	Dr. Joseph Lister, discoverer of asepsis, born 1827	5.40	6.27
6	Sun.	North Pole discovered, 1910.	5.38	6.28
7	Mon.	The kitchen is the laboratory of the home.	5.37	6.29
8	Tue.	Banner mine disaster, Littleton, Ala., 1911. 128 killed.	5.35	6.30
9	Wed.	Ability to speak English prevents accidents.	5.34	6.31
10	Thu.	One by one the food adulterators are vanishing.	5.32	6.32
11	Fri.	Safety first; save food.	5.30	6.33
12	Sat.	One way to a man's heart is through his stomach.	5.29	6.33
13	Sun.	"Willful waste makes woeful want."	5.28	6.34
14	Mon.	Report contagious diseases to local health officer.	5.26	6.35
15	Tue.	Overeating is a form of intemperance.	5.25	6.36
16	Wed.	Select good food, and see that it is properly cooked.	5.23	6.37
17	Thu.	Health is wealth.	5.22	6.38
18	Fri.	Correct scales in the kitchen save groceries.	5.20	6.39
19	Sat.	Fresh vegetables are healthful.	5.19	6.40
20	Sun.	Easter Sunday.	5.17	6.41
21	Mon.	Be thrifty; buy United States Thrift Stamps.	5.16	6.42
22	Tue.	An injury from ignorance is not bliss.	5.15	6.43
23	Wed.	William Shakespeare died, 1616.	5.13	6.44
24	Thu.	Be careful, take no chances.	5.12	6.45
25	Fri.	All wounds, even if slight, should be treated.	5.11	6.46
26	Sat.	Report births or deaths in family to registrar.	5.09	6.47
27	Sun.	Mine disaster, Hastings, Colo., 1917. 122 lives lost.	5.08	6.48
28	Mon.	Eccles, W. Va., mine explosion, 1914. 181 killed.	5.07	6.49
29	Tue.	Carelessness may cost a life.	5.05	6.50
30	Wed.	Think of the other fellow.	5.04	6.51

SORE EYES IN NEWBORN BABIES.

Many cases of blindness occur because newborn babies with sore eyes are neglected. When the eyes of a newborn baby become red, sore or inflamed and contain pus soon after birth, do not treat the matter lightly nor neglect it; send for a physician. Sore eyes of the newborn is a serious disease which often leaves the child permanently blind. The eyes of a newborn child should be cleansed each day with a weak solution of boric acid.

PELLAGRA.

Pellagra is a disease due to improper diet. Investigations made by medical officers of the United States Public Health Service show that pellagra is due to an unbalanced diet; too much of one kind of food, too little of another. Such a diet contains too much sweet and starches and **not enough** vegetables such as peas and beans, fresh meats, and fruit juices.

To prevent pellagra a well-balanced diet should be eaten the year round. A cow and chickens help to furnish a well-balanced diet. Peas, beans, fresh or dry, but **not** canned, eggs, milk, and lean meat should be served on every miner's table.

The Public Health Service recommends the following bill of fare as an example of the diet that will prevent pellagra:

BREAKFAST.

Sweet milk, daily.
Boiled oatmeal with butter or milk, every other day.
Boiled hominy grits, or mush with a meat gravy or milk every other day.
Light bread or biscuits with butter, daily.

DINNER.

A meat dish (beef stew, hash, or pot roast; ham or shoulder of pork; boiled or roast fowl; broiled or fried fish; creamed salmon or codfish cakes, etc.), at least every other day.
Macaroni with cheese, once a week.
Dried beans (boiled cowpeas with or without a little meat; baked or boiled soya beans with or without a little meat), two or three times a week.
Potatoes (Irish or sweet), four or five times a week.
Rice, two or three times a week, on days with meat stew or beans.
Green vegetables (cabbage, collards, turnip greens, spinach, snap beans, or okra), three or four times a week.
Corn bread, daily.
Buttermilk, daily.

SUPPER.

Light bread or biscuit, daily.
Butter, daily.
Milk (sweet or buttermilk), daily.
Stewed fruit (apples, peaches, prunes, apricots), three or four times a week, on days where there is no green vegetable for dinner.
Peanut butter, once or twice a week.
Syrup, once or twice a week.

UNIVERSAL SANITATION PREVENTS HUMAN SUFFERING.
UNITED STATES PUBLIC HEALTH SERVICE.

MOON'S PHASES. EASTERN TIME.

	D.	H.	M.	
First Quarter.....	6	6	33 P. M.	To obtain moon's phases in—
Full Moon.....	14	8	1 P. M.	Central time
Last Quarter.....	22	5	3 P. M.	subtract 1 hour.
				Mountain time
New Moon.....	29	8	11 A. M.	subtract 2 hours.
				Pacific time
				subtract 3 hours.

This table is calculated for WASHINGTON, D. C., Virginia, Kentucky, Missouri, Kansas, Colorado, Utah, Nevada, and central California. Exact time for rising and setting of sun may vary 2 to 15 minutes, more or less, from this table in other sections of the United States, depending on the parallel of latitude upon which a given place is situated.

Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Thu.	Flies breed in filth. No filth, no flies.	5. 03	6. 52
2	Fri.	Dirt and disease stick closer than brothers.	5. 02	6. 53
3	Sat.	Dr. H. T. Ricketts died from typhus fever tests, 1910.	5. 01	6. 54
4	Sun.	Thousands die every year from diseases spread by flies.	4. 59	6. 55
5	Mon.	Fly specks contain numbers of germs.	4. 58	6. 56
6	Tue.	Flies are a perpetual reminder of the presence of filth.	4. 57	6. 57
7	Wed.	Safety first, swat the fly.	4. 56	6. 58
8	Thu.	Flies may infect open wounds.	4. 55	6. 58
9	Fri.	The fly goes from the open privy to the dinner table.	4. 54	6. 59
10	Sat.	Confederate Memorial Day, N. C., S. C.	4. 53	7. 00
11	Sun.	Safety first pays.	4. 52	7. 01
12	Mon.	Screen your home; keep out the fly.	4. 51	7. 02
13	Tue.	Is there a Liberty Bond in your home?	4. 50	7. 03
14	Wed.	Flies are enemies of mankind.	4. 49	7. 04
15	Thu.	Patriotic thrift, Buy War Savings Stamps.	4. 48	7. 05
16	Fri.	Insanitary privies breed flies.	4. 47	7. 06
17	Sat.	Avoid grocery stores and markets where flies abound.	4. 46	7. 07
18	Sun.	Keep the stable clean.	4. 45	7. 08
19	Mon.	A fly does not wipe his feet on coming into the house.	4. 45	7. 09
20	Tue.	Think what you are doing; safety always!	4. 44	7. 09
21	Wed.	Are you a breeder or a "swatter" of flies?	4. 43	7. 10
22	Thu.	Every birth and death should be recorded.	4. 42	7. 11
23	Fri.	Foreign-born miners need to understand English.	4. 42	7. 12
24	Sat.	Swat the fly; destroy his breeding places.	4. 41	7. 13
25	Sun.	Newcastle disaster, 1812; aroused interest in safety work.	4. 40	7. 14
26	Mon.	Use less wheat and fats; save food.	4. 40	7. 14
27	Tue.	R. Koch, discoverer of tuberculosis germ, died 1910.	4. 39	7. 15
28	Wed.	Humphrey Davy, inventor of safety lamps, died 1829.	4. 38	7. 16
29	Thu.	Report contagious diseases to local health officer.	4. 38	7. 17
30	Fri.	Decoration Day.	4. 37	7. 17
31	Sat.	The three fatal F's: Filth, Flies, Funerals.	4. 37	7. 18

CAN AND PRESERVE.

Allow no vegetables or fruit to go to waste. Can or preserve all the surplus the garden produces. Many fruits are easily dried. Drying fruits is not expensive; nothing is required save the labor of peeling and cutting. These foods will be most acceptable during the coming winter. Save food and serve your country.

TEN COMMANDMENTS.**TO PREVENT ACCIDENTS AND PROMOTE SANITATION.**

1. Get the safety habit. Don't take chances. Learn all the rules. Understand your work thoroughly. Study the dangers incident thereto and avoid them. Think before you act.

2. Do not work with defective chains, cables, tools, or appliances skips, or other moving machines, nor tamper with electrical apparatus of any kind. Do not work in an unsafe place. Report dangerous conditions to your foreman.

3. Never work on any machinery until you have notified the operator and attached at the point where the power is turned on a sign, "Danger, Do Not Move," bearing your name. No man except the man who placed it should ever remove such a sign.

4. Do not turn on any electricity, steam, air, or water, nor set in motion any machinery, nor throw down any material without first seeing whether anyone is in a position to be injured, and that all safety guards are in their proper places.

5. Do not handle, use, or explode any high explosive without complying with all the rules covering "High Explosives."

6. Use proper timbers and adopt all precautions to prevent any possibility of roof or sides caving in and falling on you.

7. Do not ride on or operate engines, cars, motors, steam shovels, skips, or other moving machines, nor tamper with electrical apparatus, unless authorized to do so. Never leave your regular place of work to go to another part of the mine except when required by your duties.

8. If you make an opening or remove the cover from any opening in floor, ground, shaft, raise, valve pit, or sewer, guard that opening so that no one can fall into it.

9. Do not pile any material so high that it is liable to fall or cause another pile to fall, nor allow it to lean against walls too weak to bear the pressure.

10. Commit no nuisance; be clean and help to keep the mine clean.

Conduct your private life so that you are at all times in the very best physical condition, wide-awake, and active.

H. M. WILSON and J. R. FLEMING,

Federal Bureau of Mines.

Coal miners, do your duty! America needs coal.

MOON'S PHASES. EASTERN TIME.				To obtain moon's phases in— Central time subtract 1 hour. Mountain time subtract 2 hours. Pacific time subtract 3 hours.
		D.	H. M.	
First Quarter.....	5	7	21 A. M.	
Full Moon.....	13	11	28 A. M.	
Last Quarter.....	21	0	32 A. M.	
New Moon.....	27	3	52 P. M.	

This table is calculated for WASHINGTON, D. C., Virginia, Kentucky, Missouri, Kansas, Colorado, Utah, Nevada, and central California. Exact time for rising and setting of sun may vary 2 to 15 minutes, more or less, from this table in other sections of the United States, depending on the parallel of latitude upon which a given place is situated.

Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Sun.	Health is happiness.	4.37	7.19
2	Mon.	A good motto: Sanitation, safety, efficiency.	4.36	7.20
3	Tue.	Make the "skeeter" scoot.	4.36	7.20
4	Wed.	First aid is the bridge to the Doctor.	4.35	7.21
5	Thu.	The Panama Canal is a monument to sanitation.	4.35	7.22
6	Fri.	Yellow fever has been stamped out, why not malaria?	4.35	7.22
7	Sat.	Stagnant water—mosquitoes—malaria.	4.35	7.23
8	Sun.	Mine disaster, Butte, Mont., 1917, 164 lives lost.	4.34	7.23
9	Mon.	Take "Safety First" seriously.	4.34	7.24
10	Tue.	America needs coal and metals. Do your share.	4.34	7.24
11	Wed.	Learn English if you are foreign born.	4.34	7.25
12	Thu.	Mosquitoes carry malaria.	4.34	7.25
13	Fri.	First-aid training is valuable.	4.34	7.26
14	Sat.	National Flag Day.	4.34	7.26
15	Sun.	Be loyal. Buy Thrift Stamps.	4.34	7.27
16	Mon.	Prevent accidents.	4.34	7.27
17	Tue.	Battle of Bunker Hill, 1775.	4.34	7.27
18	Wed.	Mosquitoes and malaria helped in the downfall of the Roman Empire.	4.34	7.28
19	Thu.	Malaria is preventable.	4.34	7.28
20	Fri.	Sickness is costly.	4.34	7.28
21	Sat.	Longest day in year.	4.34	7.29
22	Sun.	Own a Liberty Bond. America needs your help.	4.35	7.29
23	Mon.	Practical patriotism; work regularly.	4.35	7.29
24	Tue.	Purchase War Saving Stamps and Thrift Stamps.	4.35	7.29
25	Wed.	Births and deaths should be recorded.	4.35	7.29
26	Thu.	Oil or drain all stagnant water.	4.36	7.29
27	Fri.	Prevention is better than cure.	4.36	7.29
28	Sat.	Get the mosquito before he gets you.	4.36	7.29
29	Sun.	Report contagious diseases to local health officer.	4.37	7.29
30	Mon.	The mosquito must go.	4.37	7.29

COAL MINERS! REMEMBER:

That our ships need coal.
That our factories need coal.
That all our industries need coal.
That our folks at home need coal.
That to work to your full capacity is the best form of patriotism.

THE HOUSE FLY.

" * * * and the land was corrupted by reason of the swarm of flies" (Exodus 8:24). Thus from Biblical times the house fly, typhoid or filth fly has been with mankind spreading filth and disease. Flies breed in filth, rubbish, or garbage; the vast majority of flies are bred in stable manure. If you turn up a pile of moist manure in the summer time, frequently it will be swarming with maggots. Each maggot becomes a fly. The yard and stable should be kept scrupulously clean. The stable should be cleaned at regular intervals and the manure should be scattered and allowed to dry so that the fly eggs will not hatch.

Flies carry upon their bodies and legs filth and dirt, in which are many disease germs. Typhoid fever, diarrhea, dysentery, the diarrheal diseases of children, and other diseases are spread by flies.

As flies breed in filth, clean up the filth and the flies will have no places in which to grow. Flies are a pretty good index to the cleanliness of a place. Many flies mean there is much filth somewhere near.

There are many places around mining camps where flies may breed—in stables, in heaps of garbage, in insanitary privies.

Swat the fly is good, put up screens is better, clean up filth is best.

"Every man swept before his own door and lo, the city was clean."

MOSQUITOES.

Mosquitoes are annoying pests and certain kinds are dangerous because they spread diseases. Malaria is spread from one person to another by the bite of a mosquito. Get the mosquito before he gets you by destroying his breeding places. Mosquitoes lay eggs in water. These develop into "wiggle tails," then into full-grown mosquitoes. The female mosquito lays her eggs in stagnant water, along the banks in slow-running streams, also in tin cans or other places where water may stand.

Destroy the breeding places and banish the mosquito. No mining camp should tolerate mosquitoes. Drain the stagnant water, allow no rubbish, cans, or pools about the camp. Pour kerosene oil on the pools or ponds that can not be drained. Ducks are excellent for catching mosquitoes. Fish in pools or ponds aid in destroying mosquitoes by eating the wigglers and young mosquitoes.

Mosquitoes that carry malaria bite most frequently at night. They seemingly prefer dark objects, as dark articles of clothing. The female mosquito does the biting, as the male very rarely leaves the breeding place.

When a mosquito bites a person with malaria it draws up into its stomach the malaria germs which are in the blood of the sick person. Later, when it bites someone else it transfers these malaria germs.

Help the Government by owning a Liberty Bond.

MOON'S PHASES. EASTERN TIME.

	D. H. M.			
First Quarter.....	4	10	17 P. M.	To obtain moon's phases in—
Full Moon.....	13	1	2 A. M.	Central time subtract 1 hour.
Last Quarter.....	20	6	3 A. M.	Mountain time subtract 2 hours.
New Moon.....	27	0	21 A. M.	Pacific time subtract 3 hours.

This table is calculated for WASHINGTON, D. C., Virginia, Kentucky, Missouri, Kansas, Colorado, Utah, Nevada, and central California. Exact time for rising and setting of sun may vary 2 to 15 minutes, more or less, from this table in other sections of the United States, depending on the parallel of latitude upon which a given place is situated.

Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Tue.	Bureau of Mines established, 1910.	4. 33	7. 29
2	Wed.	Safety first. Build a sanitary privy.	4. 33	7. 29
3	Thu.	Safety in the mine, sanitation on the outside.	4. 39	7. 29
4	Fri.	Independence Day.	4. 39	7. 29
5	Sat.	Boil drinking water when in doubt as to its purity.	4. 40	7. 29
6	Sun.	Pasteur gave treatment for hydrophobia, 1885.	4. 40	7. 28
7	Mon.	Clean food is essential to health.	4. 41	7. 28
8	Tue.	Milk when filthy is dangerous.	4. 41	7. 28
9	Wed.	To boil water is a cheap and good way to disinfect it.	4. 42	7. 28
10	Thu.	All human filth is a menace to health.	4. 43	7. 27
11	Fri.	To be an efficient miner you must know English.	4. 43	7. 27
12	Sat.	For sanitary law of Israelites, read Deut. 23:12-14.	4. 44	7. 26
13	Sun.	J. A. Holmes, Director Bureau Mines, died, 1915.	4. 45	7. 26
14	Mon.	Pure water is protection against sickness.	4. 45	7. 26
15	Tue.	F. K. Lane, Secretary of Interior, born, 1864.	4. 46	7. 25
16	Wed.	U. S. Public Health Service established, 1798.	4. 47	7. 24
17	Thu.	Watch for "Danger" signs in the mine.	4. 48	7. 24
18	Fri.	Typhoid fever is preventable.	4. 48	7. 23
19	Sat.	Discovery of smallpox vaccine, 1796.	4. 49	7. 23
20	Sun.	A good miner is a careful miner.	4. 50	7. 22
21	Mon.	"He that hath clean hands shall be stronger and stronger."—Job 7:9.	4. 51	7. 21
22	Tue.	Disinfect all discharges from typhoid patients.	4. 51	7. 21
23	Wed.	Typhoid vaccination is simple, safe, and saving.	4. 52	7. 20
24	Thu.	Fight the typhoid fly.	4. 53	7. 19
25	Fri.	Report contagious diseases to local health officer.	4. 55	7. 18
26	Sat.	Wash the hands before eating.	4. 55	7. 17
27	Sun.	Dr. Carrol submits to yellow-fever experiments, 1900.	4. 56	7. 17
28	Mon.	Births and deaths should be recorded.	4. 56	7. 16
29	Tue.	Your carelessness affects others as well as yourself.	4. 57	7. 15
30	Wed.	Liberty Bonds are a good investment.	4. 58	7. 14
31	Thu.	Buying a Liberty Bond is practical patriotism.	4. 59	7. 13

GARBAGE COLLECTION.

Every mining camp should have some system of garbage collection and disposal. Garbage cans with tight-fitting covers should be at every home, and a wagon for the collection of garbage and refuse should make regular trips through the camp. A small incinerator for disposal of garbage is a valuable part of the sanitary equipment of any mining camp.

TYPHOID FEVER.

Typhoid fever is a filth disease, which is carried from one person to another (see fig. 1) through food, water, or milk in which there is human filth. Typhoid-fever germs come from other cases of typhoid fever or from a person who, though apparently well, throws off the germs in the discharges from his body. Such a person is called a "carrier."

The only way typhoid fever can be contracted is to swallow the germs, which reach the mouth through food, the fingers, or flies.

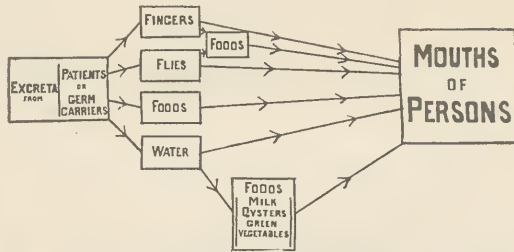


FIGURE 1.—How typhoid fever, dysentery, and cholera spread from person to person.

The germs, or seed, of typhoid fever must be swallowed in order to contract the disease.

Typhoid fever is preventable. The safe disposal of all human filth everywhere would soon stamp out typhoid fever entirely. The insanitary privy is one of the most fruitful means of spreading typhoid fever.

Every home in every mining camp should have a **sanitary privy** or a properly made water-closet. No home is safe unless provision is made for the safe disposal of the human filth at that place. Sanitary privies save lives.

VACCINATION AGAINST TYPHOID FEVER.

Typhoid vaccination is a rapid and safe means to prevent typhoid fever. When typhoid fever occurs in a family, in addition to taking all sanitary precautions, every member of the family should receive the typhoid vaccine. It can be given to children with perfect safety. The vaccine is given hypodermically in three doses, at 10-day intervals. See your doctor about taking typhoid vaccine.

With good wages and plenty of work every miner should own a Liberty Bond.

Eighth Month.

AUGUST.

31 Days.

MOON'S PHASES. EASTERN TIME.

	D.	H.	M.	
First Quarter.....	3	3	11	P. M. To obtain moon's phases
Full Moon.....	11	9	39	P. M. in—
Last Quarter.....	18	10	56	A. M. Central time,
New Moon.....	25	10	37	A. M. Mountain time,
				subtract 1 hour.
				subtract 2 hours.
				Pacific time,
				subtract 3 hours.

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Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Fri.	America's most valuable product, babies.	5. 00	7. 12
2	Sat.	Nurse baby at regular intervals by the clock.	5. 01	7. 11
3	Sun.	Poverty, ignorance, and neglect kill many babies.	5. 02	7. 10
4	Mon.	Keep the baby away from contagious diseases.	5. 03	7. 09
5	Tue.	Baby should sleep alone in a crib, not a cradle.	5. 04	7. 08
6	Wed.	Every child should be vaccinated against smallpox.	5. 04	7. 07
7	Thu.	Save food but do not underfeed growing children.	5. 04	7. 05
8	Fri.	Learn to speak English if you are foreign born.	5. 05	7. 04
9	Sat.	Francis Scott Key born, 1780.	5. 07	7. 03
10	Sun.	Buy War Savings Stamps. Be patriotic.	5. 08	7. 02
11	Mon.	Watch the newborn baby's eyes for inflammation.	5. 09	7. 01
12	Tue.	Baby needs fresh air.	5. 10	6. 59
13	Wed.	Do not wean baby suddenly; do so gradually.	5. 11	6. 58
14	Thu.	Gold discovered in Alaska, 1896.	5. 12	6. 57
15	Fri.	Panama Canal opened, 1914.	5. 13	6. 56
16	Sat.	Every fifth baby born dies from preventable causes.	5. 14	6. 54
17	Sun.	Mother's milk was made for babies.	5. 14	6. 53
18	Mon.	Every child has the right to be born healthy.	5. 15	6. 52
19	Tue.	Clothe the baby sensibly.	5. 16	6. 50
20	Wed.	Protect baby's eyes from bright light.	5. 17	6. 49
21	Thu.	Bathe the baby once each day.	5. 18	6. 48
22	Fri.	Weigh the baby regularly.	5. 19	6. 46
23	Sat.	Do not kiss the baby on the mouth.	5. 20	6. 45
24	Sun.	Baby's birth should be recorded.	5. 21	6. 43
25	Mon.	Bret Harte born, 1839.	5. 22	6. 42
26	Tue.	Report contagious diseases to local health officer.	5. 23	6. 40
27	Wed.	Van. H. Manning made Director Bureau Mines, 1915.	5. 24	6. 39
28	Thu.	Get plenty of fresh air and sunshine.	5. 24	6. 37
29	Fri.	Dr. Oliver Wendell Holmes born, 1809.	5. 25	6. 36
30	Sat.	Never sleep in a room with all windows closed.	5. 26	6. 34
31	Sun.	"To live long, live right."	5. 27	6. 33

MINERS' CONSUMPTION.

While the cause of miners' consumption is found entirely in the underground work of the miners, yet the poor and often miserable conditions under which so many of them live and the presence of tuberculous foci all combine to reduce their vitality and resistance on the one hand and directly to increase their chance of tuberculous infection on the other.

A. J. LANZA,

Passed Assistant Surgeon, United States Public Health Service.

SCHOOL BEGINS.

During September thousands of miners' children will begin the school term. With the beginning of school different epidemic diseases may possibly break out, such as measles, whooping cough, diphtheria, scarlet fever, and infantile paralysis.

The school building should be kept clean and sanitary. It should have sanitary drinking fountains, adequate ventilation, proper heating, correct lighting, sanitary privies or water-closets, and a place for the children to wash their hands.

Evidence of successful vaccination against smallpox should be required of every child entering school for the first time.

Medical inspection of every school child is very important. In this way many physical defects can be recognized and appropriately treated. One of every three school children has some minor physical handicap, and one of every five has some serious physical defect. Children can not do good work in school when they are suffering from some physical ailment.

Bad teeth is a common defect among children, and eye and ear defects occur with surprising frequency. The medical inspector of school children simply recognizes these defects and sends the child to the parents with the suggestion that the family physician be consulted in the matter.

Medical inspection of school children means money saved.

DIPHTHERIA.

Diphtheria is a communicable disease which affects the throat and air passages. Children or adults may be affected, although the disease is more common among children.

Diphtheria is spread by contact with the secretion from the nose or throat of some person who has diphtheria or who is recovering from an attack of diphtheria. Diphtheria is spread by means of the public drinking cup, the common roller towel, or by coming in contact with a person who has the disease or who is a "carrier," or by a cat that has a "bad cold."

Every case of this disease should be isolated until the doctor has made two successive negative cultures from the nose and throat of the patient. A house in which there is a case of diphtheria should be placarded.

Diphtheria antitoxin when used in time will check the progress of the disease and cure it. Since the introduction of the use of antitoxin in the treatment of diphtheria, the death rate from this disease has been reduced more than one half.

Help conserve the food supply.

MOON'S PHASES. EASTERN TIME.

	D.	H.	M.	
First Quarter.....	2	9	21 A. M.	To obtain moon's phases
Full Moon.....	9	10	54 P. M.	in—
Last Quarter.....	16	4	31 P. M.	Central time,
New Moon.....	23	11	33 P. M.	subtract 1 hour.
				Mountain time,
				subtract 2 hours.
				Pacific time,
				subtract 3 hours.

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Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Mon.	Labor Day.	5.28	6.31
2	Tue.	Young America, the Nation's hope!	5.29	6.30
3	Wed.	Dr. Joseph A. Holmes appointed first Director of the Bureau of Mines, 1910.	5.30	6.28
4	Thu.	Every school must have a playground.	5.31	6.27
5	Fri.	Teach the children to buy Thrift Stamps.	5.31	6.27
6	Sat.	A sermon in two words: "Safety first!"	5.33	6.24
7	Sun.	The schoolroom needs fresh air.	5.33	6.22
8	Mon.	When coming out of the mine, use the manway.	5.34	6.21
9	Tue.	School days should be healthy days.	5.35	6.19
10	Wed.	Has the school sanitary privies?	5.36	6.17
11	Thu.	When you "take a chance," think of your children.	5.37	6.16
12	Fri.	The school blackboard should not reflect the light.	5.38	6.14
13	Sat.	A community is known by the school it keeps.	5.39	6.13
14	Sun.	Good light means good work.	5.40	6.11
15	Mon.	Ex-President Taft born, 1857.	5.41	6.09
16	Tue.	Always Stop, Look, and Listen when danger is near.	5.42	6.08
17	Wed.	Banish the public towel.	5.42	6.06
18	Thu.	Cornerstone of Capitol at Washington laid, 1793.	5.43	6.05
19	Fri.	The A B C of sanitation. Always Be Clean.	5.44	6.03
20	Sat.	Practice economy of food. Save it for the starving.	5.45	6.01
21	Sun.	Drink pure water and plenty of it.	5.46	6.00
22	Mon.	English is the language of the country in which you live. Learn to speak it.	5.47	5.58
23	Tue.	Sanitary drinking fountains are needed at every school.	5.48	5.57
24	Wed.	What shall it profit a child to gain the whole world of knowledge and to lose its health?	5.49	5.55
25	Thu.	The health officer must know what diseases are in the camp. Report contagious diseases to him.	5.50	5.53
26	Fri.	Nine-tenths of happiness depends on health.	5.51	5.52
27	Sat.	A clean schoolroom makes sanitary homes.	5.51	5.50
28	Sun.	Dr. Louis Pasteur died, 1895.	5.52	5.49
29	Mon.	Good ventilation of a schoolroom is necessary.	5.53	5.47
30	Tue.	Report all births and deaths to the local registrar.	5.54	5.45

PATENT MEDICINES.

By far the greater number of "patent medicines" are useless; many are harmful. Almost all contain alcohol—some as high as 19 per cent. Such preparations make fraudulent claims and cheat with false hopes until proper treatment is too late. They keep the sick from getting well. They swell the list of untimely deaths. It is the height of folly to take "medicine," the contents of which are unknown, for a condition which has not yet been passed upon by a physician.

COMMUNICABLE DISEASES OF CHILDHOOD.

Many people believe that there are certain diseases that every child should contract. Measles, mumps, and whooping cough are the diseases usually so regarded. This view is entirely wrong. No child should be knowingly exposed to any contagious or communicable disease. The ordinary communicable diseases of childhood are much more serious than is commonly supposed. Whooping cough and measles cause numbers of unnecessary deaths each year. Such diseases are communicable, hence they are preventable.

CARE OF THE TEETH.

The care of the mouth and teeth is a habit of no small importance. The teeth grind and prepare our food and with the aid of the tongue and cheeks mix it with the saliva. Only after thorough grinding and mixing with the saliva is the food ready for digestion, which takes place in the stomach and small intestines. Unless our food is thoroughly chewed before it enters the stomach, trouble is sure to follow.

Neglected and diseased teeth furnish breeding places for germs. They soon decay and can not properly chew food. Get the habit of cleaning the teeth morning and night.

Eating hurriedly is very detrimental to health. Acquire the habit of eating slowly and chewing the food thoroughly. Many miners eat their noonday meal very hurriedly; this habit should be avoided.

It is a safe and wise habit to consult a reliable dentist at least once every six months. In this way a defect or decay which may be forming will be recognized and properly treated.

A sound set of teeth is a most valuable asset to any person.

COLDS.

Colds are a very common infection; they are easily spread from one person to another. Colds are caused by small germs. These germs are spread by the secretions from the nose, throat, and lungs of persons who have the infection. To prevent colds live, work, and sleep in plenty of fresh air. Avoid hot, stuffy rooms and getting chilled from cold or wet. Keep the body in good condition by proper food, exercise, and attention to avoiding the waste of the body.

Colds may develop into more serious conditions. A severe cold should not be regarded lightly. It is best to consult a physician.

**Put your savings in War Savings Stamps and Thrift Stamps.
Our country needs all the help you can give.**

MOON'S PHASES, EASTERN TIME.

	D.	H.	M.	
First Quarter.....	2	3	37	A. M.
Full Moon.....	9	8	38	A. M.
Last Quarter.....	16	0	4	A. M.
New Moon.....	23	3	39	P. M.
First Quarter.....	31	8	41	P. M.

This table is calculated for WASHINGTON, D. C., Virginia, Kentucky, Missouri, Kansas, Colorado, Utah, Nevada, and central California. Exact time for rising and setting of sun may vary 2 to 15 minutes, more or less, from this table in other sections of the United States, depending on the parallel of latitude upon which a given place is situated.

Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Wed.	"Better health is to a striking extent a purchasable commodity and benefit."	5.55	5.44
2	Thu.	Teach your children to love the open air.	5.56	5.42
3	Fri.	When your child is sick send for a physician.	5.57	5.41
4	Sat.	Sore throat among children must be closely watched. Diphtheria begins that way.	5.58	5.39
5	Sun.	Keep away from persons with diphtheria.	5.59	5.38
6	Mon.	Buy War Savings Stamps and be a patriot.	6.00	5.36
7	Tue.	Diphtheria is catching.	6.01	5.35
8	Wed.	Diphtheria antitoxin is safe and reliable in treating diphtheria.	6.02	5.33
9	Thu.	Thoroughly disinfect all clothing and bed linen used in a case of diphtheria.	6.03	5.31
10	Fri.	Keep the children away from contagious diseases.	6.04	5.30
11	Sat.	Disinfect all discharges from a case of infantile paralysis.	6.05	5.28
12	Sun.	Flies spread diphtheria and infantile paralysis.	6.06	5.27
13	Mon.	Diphtheria has been known for centuries.	6.07	5.25
14	Tue.	"On the health of the nation depends the efficiency of labor."	6.08	5.24
15	Wed.	Mine accidents cost time and money; prevent them.	6.09	5.23
16	Thu.	Keep away from cases of infantile paralysis.	6.10	5.21
17	Fri.	The safety first movement has reduced the death rate among miners very markedly.	6.11	5.20
18	Sat.	Infantile paralysis is communicable.	6.12	5.18
19	Sun.	Foreign-born miners and their children should learn English.	6.13	5.17
20	Mon.	Infantile paralysis was known to the ancient Egyptians.	6.14	5.16
21	Tue.	"The preventability of diseases is the most powerful fact of the century."	6.15	5.14
22	Wed.	Dawson, N. Mex., mine explosion, 1913. 263 killed.	6.16	5.13
23	Thu.	Report contagious diseases to local health officer.	6.17	5.11
24	Fri.	Accidents are preventable, and so are many diseases.	6.18	5.10
25	Sat.	Report births and deaths in your family.	6.19	5.09
26	Sun.	Hundreds of miners have been killed in explosions.	6.20	5.08
27	Mon.	Ex-President Roosevelt born, 1858.	6.21	5.06
28	Tue.	"A fool and his health are soon parted."	6.22	5.05
29	Wed.	An excellent way to learn English is to study the Bible.	6.23	5.04
30	Thu.	Report all dangerous places in the mine.	6.24	5.03
31	Fri.	Buy Government Thrift Stamps.	6.25	5.01

Don't waste food, millions are starving.

MINERS' ITCH OR MINERS' ANEMIA.

Miners' itch or anemia (paleness), is caused by hookworms, which are small worms $\frac{1}{4}$ to $\frac{3}{4}$ inch long. They attach themselves to the lining of the stomach and small intestines, and there each worm sucks a drop of blood each day, makes a little sore spot, and injects a little poison. Each female hookworm lays 300 to 3,000 eggs each day. These eggs literally swarm in each bowel discharge from a person who has hookworm disease.

Hookworm eggs when deposited in the soil develop into little worms. When the soil containing these comes in contact with the bare skin of a person, the worms bore through the skin and produce an intense itching and irritation. This is called miners' itch when on the arms or body, and "ground itch" when on the feet or legs. Tincture of iodine applied full strength is excellent for such a condition.

Miners' itch in the United States is seen chiefly in Southern and Southwestern States, although it has been noted on the Pacific coast.

Hookworm disease may be prevented by proper disposal of sewage underground and on the surface.

MECHANICAL SAFEGUARDS.

The production of mineral wealth requires extensive use of varied and complicated machinery. To prevent accidents such devices as the following are used:

Protection by suitable safeguards of all exposed gears, pulleys, shafting, belting, circular saws, emery wheels, cutter bars, and trolley wires.

Elimination of projecting set screws, bolts, or keys on revolving shafts.

Loose pulleys for belt-driven machines and more extensive use of direct-connected machinery.

Wearing of close-fitting clothing by persons working around gears and revolving parts of machines.

Flywheels fenced off.

Ample clearance space and light.

Passageways kept free from obstructions.

Railings in connection with stairways and overhead walks.

Free use of danger signs, instructions, and cautions.

Protection from dangers attending use of steam, electricity, and compressed air.

H. M. WILSON and J. R. FLEMING,

Federal Bureau of Mines.

"Your proud privilege as an American, own a Liberty Bond."

MOON'S PHASES. EASTERN TIME.

	D.	H.	M.	
Full Moon.....	7	6	35 P. M.	To obtain moon's phases in—
Last Quarter.....	14	10	40 A. M.	Central time
New Moon.....	22	10	19 A. M.	subtract 1 hour.
First Quarter.....	30	11	46 A. M.	Mountain time
				subtract 2 hours.
				Pacific time
				subtract 3 hours.

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Day of Month.	Day of Week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun Rises.	Sun Sets.
1	Sat.	Stand by the President.	6. 27	5. 00
2	Sun.	Carelessness means injury sooner or later.	6. 28	4. 59
3	Mon.	Report all unsafe conditions and prevent accidents.	6. 29	4. 58
4	Tue.	Mine rescue apparatus first used in mine, Portskewett, England, 1880.	6. 30	4. 57
5	Wed.	It takes less time to prevent an accident than to report one.	6. 31	4. 56
6	Thu.	If you see a fellow workman going into a place of danger warn him.	6. 32	4. 55
7	Fri.	It is better to cause a delay than an accident.	6. 33	4. 54
8	Sat.	Better be careful than crippled.	6. 34	4. 53
9	Sun.	Davy presented a paper on miners' safety lamp, 1815.	6. 35	4. 52
10	Mon.	Careless workmen are dangerous in mines.	6. 37	4. 51
11	Tue.	Every accident is a notice that something is wrong.	6. 38	4. 50
12	Wed.	Make repairs before, not after, an accident.	6. 39	4. 49
13	Thu.	St. Paul No. 2, Cherry, Ill., mine fire, 259 men lost, 1909.	6. 40	4. 48
14	Fri.	The little things count. Buy Thrift Stamps.	6. 41	4. 48
15	Sat.	Do not let loose material lie around for men to fall over.	6. 42	4. 47
16	Sun.	Learn English; it will prevent accidents.	6. 43	4. 46
17	Mon.	A timber in place is worth a thousand on the pile.	6. 44	4. 45
18	Tue.	Be sure you are safe, then go ahead	6. 45	4. 45
19	Wed.	Every loyal miner owns a Liberty Bond.	6. 46	4. 44
20	Thu.	Get the safety habit.	6. 48	4. 43
21	Fri.	Births and deaths must be recorded. Report them.	6. 49	4. 43
22	Sat.	Don't gamble with your life; you might lose.	6. 50	4. 42
23	Sun.	Dr. Joseph A. Holmes, first Director Bureau of Mines, born, 1859.	6. 51	4. 42
24	Mon.	Carefulness will avoid many accidents.	6. 52	4. 41
25	Tue.	Half of the men killed in coal mines are killed by falls of roof, slate, and coal.	6. 53	4. 41
26	Wed.	Report contagious diseases to local health officer.	6. 54	4. 40
27	Thu.	Thanksgiving Day.	6. 55	4. 40
28	Fri.	Careful men are as a rule the most efficient.	6. 56	4. 39
29	Sat.	Be temperate in your habits; it means greater safety and more money.	6. 57	4. 39
30	Sun.	Look out for the other man; you might hurt him. (Safety precepts by H. M. WILSON and J. R. FLEMING, <i>Federal Bureau of Mines.</i>)	6. 58	4. 39

METHODS OF MAKING COAL DUST HARMLESS.

Coal dust can not entirely be gotten rid of in a coal mine by any practical method, but it can be so treated that it will not be a source of danger. The chief methods by which it can be efficiently treated are as follows:

1. By spreading rock dust with a blower or by hand.
2. By humidifying the ventilating current with steam jets.
3. By watering or washing down the walls, roof timbers, and floor with a hose.
4. By using tank cars that forcibly spray not only the floor but also the walls and roof.
5. By spraying with a solution of calcium chloride, and also spreading granulated calcium chloride.

The adoption of these methods is under the control of the mine management, but every miner has the right to observe whether the result makes a safe mine in which to work, and if the watering is deficient he should so report to the foreman.

GEORGE S. RICE,

Chief Mining Engineer, Federal Bureau of Mines.

DRINKING WATER IN MINES.

Miners are often careless about their drinking water when underground. If you are not sure about the purity of the water supplied in the mine, carry your drinking water in with you. Many diseases are spread through polluted or filthy drinking water. Typhoid fever, cholera, and dysentery are spread in this way.

Avoid drinking out of the cup, jug, or bottle that any one else uses. Several dangerous diseases are spread in this manner. Consumption, common colds, and syphilis may be contracted by drinking after persons with these diseases.

BE CAREFUL.

Bear in mind the value of a sound body.

To be careless, thoughtless, or reckless means injury sooner or later to yourself or to others.

When in doubt, take the safe course; you will live longer.

Don't guess. Be sure and safe. The careful man is usually a good worker, and he has a better grip on his job than the careless man.

EDWIN HIGGINS,

Mine Safety Inspector.

If you could not go over there, you can mine coal and ore to help those who are over there. Dig an extra ton for the boys.

MOON'S PHASES. EASTERN TIME.

	D.	H.	M.	
Full Moon.....	7	5	3 A.M.	To obtain moon's phases in—
Last Quarter.....	14	1	2 A.M.	Central time subtract 1 hour.
New Moon.	22	5	55 A.M.	Mountain time subtract 2 hours.
First Quarter.....	30	0	25 A.M.	Pacific time subtract 3 hours.

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Day of month.	Day of week.	SAFETY HINTS AND HISTORICAL EVENTS.	Sun rises.	Sun sets.
1	Mon.	America expects every miner to do his duty.	6.59	4.39
2	Tue.	Safety first is a fundamental law of successful mining.	7.00	4.38
3	Wed.	Watch out for the motor.	7.01	4.38
4	Thu.	Sound the roof; take no chances.	7.02	4.38
5	Fri.	When about machinery do not wear loose clothing.	7.03	4.38
6	Sat.	Monongah mine, W. Va., disaster, 1907; 361 killed.	7.04	4.38
7	Sun.	Watch your roof.	7.05	4.38
8	Mon.	Your camp needs a First-Aid Society.	7.06	4.38
9	Tue.	Your patriotic duty, own a Liberty Bond.	7.07	4.38
10	Wed.	Live wires make dead men.	7.07	4.38
11	Thu.	A real miner is more than a worker, he is a thinker.	7.08	4.38
12	Fri.	Samuel Gompers first elected President American Federation of Labor, 1886.	7.09	4.38
13	Sat.	Negligence is criminal.	7.10	4.38
14	Sun.	Make your mine efficient.	7.10	4.39
15	Mon.	Van. H. Manning, Director Bureau of Mines, born, 1861.	7.11	4.39
16	Tues.	Begin work on time.	7.12	4.39
17	Wed.	Sir Humphrey Davy born, 1779.	7.13	4.39
18	Thu.	Do not waste food; eat less fat and wheat.	7.13	4.40
19	Fri.	Darr mine, Jacobs Creek, Pa., disaster, 1907; 239 lost.	7.14	4.40
20	Sat.	Matches have no place in a gaseous mine.	7.14	4.41
21	Sun.	Keep the mine fans going.	7.15	4.41
22	Mon.	Gas is treacherous; take no chances.	7.15	4.42
23	Tue.	Coal dust is explosive.	7.16	4.42
24	Wed.	Learn to speak English and be more efficient.	7.16	4.43
25	Thu.	Christmas Day.	7.17	4.43
26	Fri.	Use an electric safety lamp.	7.17	4.44
27	Sat.	Keep the dust down, or the mine may go up.	7.18	4.44
28	Sun.	President Wilson born, 1856.	7.18	4.45
29	Mon.	Do you use permissible explosives?	7.18	4.46
30	Tue.	Most mine explosions occur during the winter.	7.18	4.47
31	Wed.	America first, then safety. Buy Thrift Stamps.	7.19	4.47

INFANTILE PARALYSIS.

Infantile paralysis is caused by a very small germ, about which little is known at present. The germs or virus are found in the secretions from the mouth, nose, throat, and in the discharges from the bowels. Dust may contain the germs. Children under 16 years of age are more susceptible; those under 5 years are most frequently affected.

Every case of infantile paralysis should be kept away from the children who are not sick. The prevention of infantile paralysis lies in the early diagnosis and strict isolation.

PRECAUTIONS IN A GASEOUS MINE.

In a gaseous mine, or in gaseous workings of a mine, every miner and mine employee should bear in mind these injunctions:

Don't carry an open light, even if no gas is shown in the safety lamp when you enter gaseous workings.

Don't carry matches and smoking tobacco.

Don't tamper with your safety lamp; if it is not in good condition go to the lamp station. Test for gas from time to time with your safety lamp, and if there is any gas put a timber across the entrance to your place, mark "Danger" on it, and notify the nearest official.

Don't stand your safety lamp on the ground. It may upset and cause the flame to crack the glass. Hang it on a spike or large nail driven firmly in a post.

Don't enter any place that the fire boss has marked as containing gas.

Close ventilating doors, or any brattice through which you pass.

Watch to see that ventilation stoppings are tight, and don't begrudge a few minutes of your own time in order to close any hole; it is for your safety, as well as that of others.

Don't use black powder or dynamite if the mine regulations require permissible explosives, and if permissible explosives are not being used, ask the mine officials to have them used. Remember that probably nine out of ten explosions start at a working face, therefore, the prevention of conditions that may cause an explosion depends largely on you and your fellow miners at the face. The mine officials and the operator share the responsibility, but you should do your part willingly and should not join with other miners in defending a fellow workman from discharge or other penalty for disobeying necessary rules. If you uphold the officials of the mine and keep their regulations for safety, you will find that they can not refuse to provide all necessary measures for safety.

GEO. S. RICE,

Chief Mining Engineer, Federal Bureau of Mines.

MINE RESCUE APPARATUS.

The primary purpose of oxygen rescue apparatus is to protect from poisonous gases those who venture into mines to rescue those imprisoned. However, the apparatus is now widely used in fighting mine fires and in mine recovery work. Like any device used to insure protection, it must be on hand when needed, and it should be kept in working order and in a sanitary condition at all times. The men who use it must be properly trained in its use.

EDWARD STEIDLE,

Mining Engineer, Federal Bureau of Mines.

EXPLOSIVES USED IN MINING.

The three principal explosives used in mining are black blasting powder, dynamite, and permissible explosives for use in gaseous coal mines.

Black powder is the oldest explosive of which we have any record. It was used in China as early as the fourteenth century. Although it was made use of in firearms and in blasting at an early date, its first use is supposed to have been in the manufacture of pyrotechnics. Black powder is made by compounding saltpeter, charcoal, and sulphur together in approximately the following proportions: Saltpeter, 75 per cent; charcoal, 15 per cent; and sulphur, 10 per cent. Black blasting powder is still widely used in nongaseous coal mines. It has in its favor cheapness, and a comparative slow rate of combustion, which gives a larger percentage of lump coal than is usually obtained by the newer and safer permissible explosives. Black blasting powder, however, has the decided disadvantage of giving off a large amount of flame at a very high temperature, with the attending danger of setting fire to the coal that has been broken down or, in a dusty or gaseous mine, of igniting the dust or gas and causing an explosion. For these reasons, in coal mining black blasting powder is rapidly giving place to the permissible explosives.

In metal mining, practically the only explosive now used is dynamite. For blasting rock, dynamite, on account of its greater strength and shattering effect, soon replaced the black blasting powder of earlier days. Dynamite is made by mixing nitroglycerin with an absorbent. The strength of the dynamite depends on the amount of nitroglycerin so absorbed. The usual absorbent in standard dynamite is nitrate of soda and wood pulp.

The majority of the newer coal powders, or permissible explosives, are in reality low-grade dynamites. The absorbent in these has been changed so as to give a slow-acting powder that produces a short, very low temperature flame. All powders listed as permissible have passed the rigid tests of the Bureau of Mines, and are safer to use in gaseous or dusty mines.

C. A. HERBERT,
Coal Mining Engineer,
Federal Bureau of Mines.

At this critical time every loyal miner should forget all disputes or jealousies and think only of Our Country and her needs. Get out a little more tonnage this month. "The World must be made safe for Democracy."

SOME IMPORTANT TRUTHS.

1. It is easier, better, and cheaper to prevent than to cure disease.
2. Everything that protects the mother before her baby is born improves the health of the baby after its birth.
3. Many of the diseases seen in older children and adults begin in infancy.
4. Healthy babies make strong men and women.
5. The baby's food, home, and surroundings play an important part in keeping it well or making it sick.
6. Mother's milk is the best food for babies.
7. Cow's milk which has become infected with disease germs kills many babies.
8. Extreme heat and impure air kills many babies in the summer, especially bottle-fed babies.
9. The health and happiness of the whole household are improved by everything done to protect the baby.

THE CARE OF THE BABY,
Public Health Reports,
United States Public Health Service.

THE CARE AND FEEDING OF INFANTS.

"MOTHER'S MILK IS NATURE'S FOOD."

1. The most loving act a mother can do is to nurse her baby. When the baby nurses, it not only gets the best food, but it is less liable to many diseases, such as "summer complaint," convulsions, and tuberculosis. Out of every 100 of the bottle-fed babies an average of 30 die in the first year, while only about 7 out of every 100 of the breast-fed babies die in the first year.
2. Nearly every mother can nurse her baby during the first 3 or 4 months of its life. If she can nurse it for 10 months, so much the better.
3. There may be an abundant supply of milk after the first few weeks, even if there is but little at first; the act of suckling causes the milk to come into the breasts and increases the supply. It is very important that the baby nurse regularly.
4. If the baby is too weak to nurse, a healthy infant can be used to excite the flow of milk until the baby has grown strong enough to nurse. This should not be done without a physician's advice.

Buy a baby bond (War Savings Stamp).

5. The only way to tell how much food the baby is getting is to weigh it before and after each nursing during at least 24 hours. The clothes need not be removed, but the baby should be dressed in exactly the same way when weighed after nursing as before. (If the baby should soil its diaper after the first weighing do not change until after the second weighing.) If the baby is not getting enough breast milk, the quantity lacking should be made up by properly prepared cow's milk. Let a physician decide this. This shortage on the mother's part may be only temporary, and with suitable care the milk will probably increase so that in a short time the baby will be satisfied with the breast only.

6. The following things affect the milk supply: Peace of mind is necessary for the mother; she must not worry; she should not get overtired; she should eat freely of her usual diet. The total quantity of fluids taken by her in 24 hours should not be less than two quarts; in hot weather more. Stuffing, however, is needless and wrong.

7. Consumption in the mother is practically the only disease that always forbids nursing. Paleness, nervousness, fatigue, pains in the back and chest, or the return of the monthly sickness are not sufficient reasons for weaning; but when these symptoms are present, or pregnancy follows, a physician should be consulted at once.

8. Shortly after birth, boiled water, without sugar, may be given to the baby at regular intervals until the mother's milk supply is established. The baby, however, should be put to the breast at stated times, as often as the mother's condition permits.

9. After the fourth month give the baby orange juice once a day, between feedings, especially if it is fed boiled or pasteurized milk.

THE CARE OF THE BABY,
Public Health Reports,
United States Public Health Service.

REASONS WHY EVERY BABY BORN SHOULD BE REGISTERED.

1. To establish correct age.
2. To establish legitimacy.
3. To prove the right to inherit property.
4. To establish citizenship.
5. To prove the right to vote and to hold office.
6. To determine the age when liable for military duty.
7. To establish the right to enter school.
8. To establish age when marriage contract may be entered into.
9. For purposes of health statistics.

Eat less Wheat; save Food.

THE DISPOSAL OF HUMAN EXCRETA IN RURAL DISTRICTS.

THE PROBLEM.

The disposal of human excreta in rural districts, where the cost of a modern sewerage system would be too great is a vital problem. In those districts where the insanitary pit and surface privies are in use, typhoid fever, dysentery, "summer complaint," hookworm, and many other serious diseases cause much needless sickness and death each year.

THE OLD SYSTEM.

These open, disgustingly insanitary privies violate every sense of decency and cleanliness, and are a reflection upon the intelligence of the people using them.

They are open to flies. Throughout the fly season millions of these filthy insects swarm over and breed in this human filth, and then go directly to dining rooms and kitchens, where they track the filth over people's food.

Chickens, cats, dogs, and other animals scatter the filth around the premises, often near the well, into which it is washed by the first rain.

This filth also seeps and soaks into the ground and contaminates wells and springs for a distance of several hundred yards or more.

SEWAGE DISPOSAL IN MINES.

Every miner readily realizes the importance of fresh air in the mine. Bad air is dangerous and unhealthful. No miner would work in a mine that has no system of ventilation.

However important the ventilation of a mine is as regards safety and health, it is not the only factor to be considered in the sanitation of a mine. The proper disposal of human excreta, or waste from the human body, within the mine is necessary for cleanliness and for protection against sickness. Typhoid fever, diarrhea, dysentery, and miners' anemia or hookworm disease are spread through human filth. There should be a definite system of disposing of the filth in every mine. Portable toilets are used in some mines; others use worked-out rooms, some the return airway. No miner should befoul the mine in any place save the designated spot for such purpose. Filth should never be allowed to remain where others will come in contact with it. A man who violates a sanitary rule is guilty of a serious offense and should be punished.

Every miner is expected to do his full duty.

THE SANITARY PAIL PRIVY.

The sanitary need of mining camps everywhere is sanitary privies. The expression "Filthy as a mining camp" has become common because many mining towns have absolutely no system of sewage disposal or scavenger service. Insanitary privies are repulsive to the sense of decency as well as dangerous to health.

"A sanitary privy is a labor-saving device for convenient and comfortable use in the safe and cleanly disposal of human excreta."

A sanitary privy must conform to the following specifications:

1. Be fly-proof.
2. Have water-tight receptacle.
3. Be well ventilated.
4. Be easily accessible for cleaning.

The accompanying plans for the construction of a sanitary box, which can be set up in any privy building, have been devised by officers of the Public Health Service. These sanitary boxes have been used in many mining camps and industrial villages. They can be made at small cost and put into any privy building already in use.

This type of sanitary privy is particularly suited to the milder climate of the Southern and Southwestern States.

CONSTRUCTION OF SANITARY PRIVY BOX.

Construct the sanitary privy box of sound, seasoned lumber, tongued and grooved, free from knot holes and cracks, and dressed on at least one side. Nail the box securely, and make all joints tight.

Inside dimensions for the box with single seat (can 15 by 15 inches) and for box with double seat are as follows:

	Box with single seat.	Box with double seat.
Length, inches.....	22	48
Breadth, inches.....	18	18
Depth, inches.....	17	17

The lid of the box forms the seat for the privy. Make this lid of sound lumber, and let it project 1 inch over the front and both ends of the box; nail four strips 1 inch square to the under side of this lid in such manner that they will project on the inside of the box, forming a fly-proof joint.

Put the front edge of the seat hole not less than 4 inches back from the front edge of the lid. Hinge the lid at the back so that it may be raised when the can is removed.

Make a cover to the hole so that it overlaps the hole not less than 3 inches in all directions. Use ordinary strap hinges to hold the cover in place.

Bore a horizontal series of eight holes 1 inch in diameter 1 inch from the floor in the front wall of the box. Cover these holes with good screen wire-gauze of at least 14 meshes to the linear inch. In

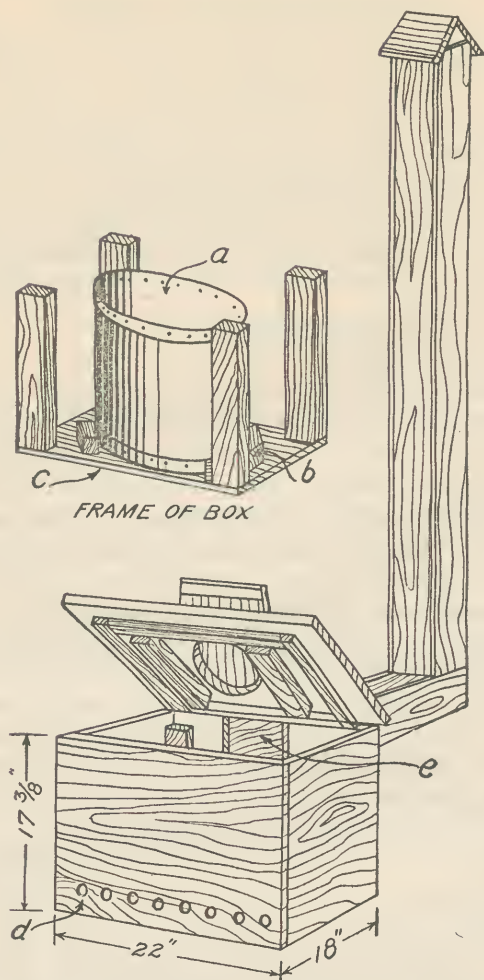


FIGURE 2.—Sketch showing sanitary privy box with stack. (a) Galvanized pail, 15 inches high and 15 inches in diameter; (b) blocks to hold pail in position; (c) bottom of box; (d) 1-inch holes, 1 inch from bottom, to be covered with screen wire; (e) opening to stack, to be covered with screen wire.

the back wall make an opening $4\frac{1}{2}$ inches square for the ventilation flue.

Let the ventilating flue measure at least 4 inches square, inside measurement. Make the short arm of the flue about 2 feet long, extend the long arm about 1 foot above the roof of the privy, and join it to the short arm at right angles. Attach the ventilating flue securely to the outside wall of the privy.

Tack small blocks of wood 2 inches thick to the bottom of the box to hold the can in its proper place.

Do not waste food; save it for those who need it.

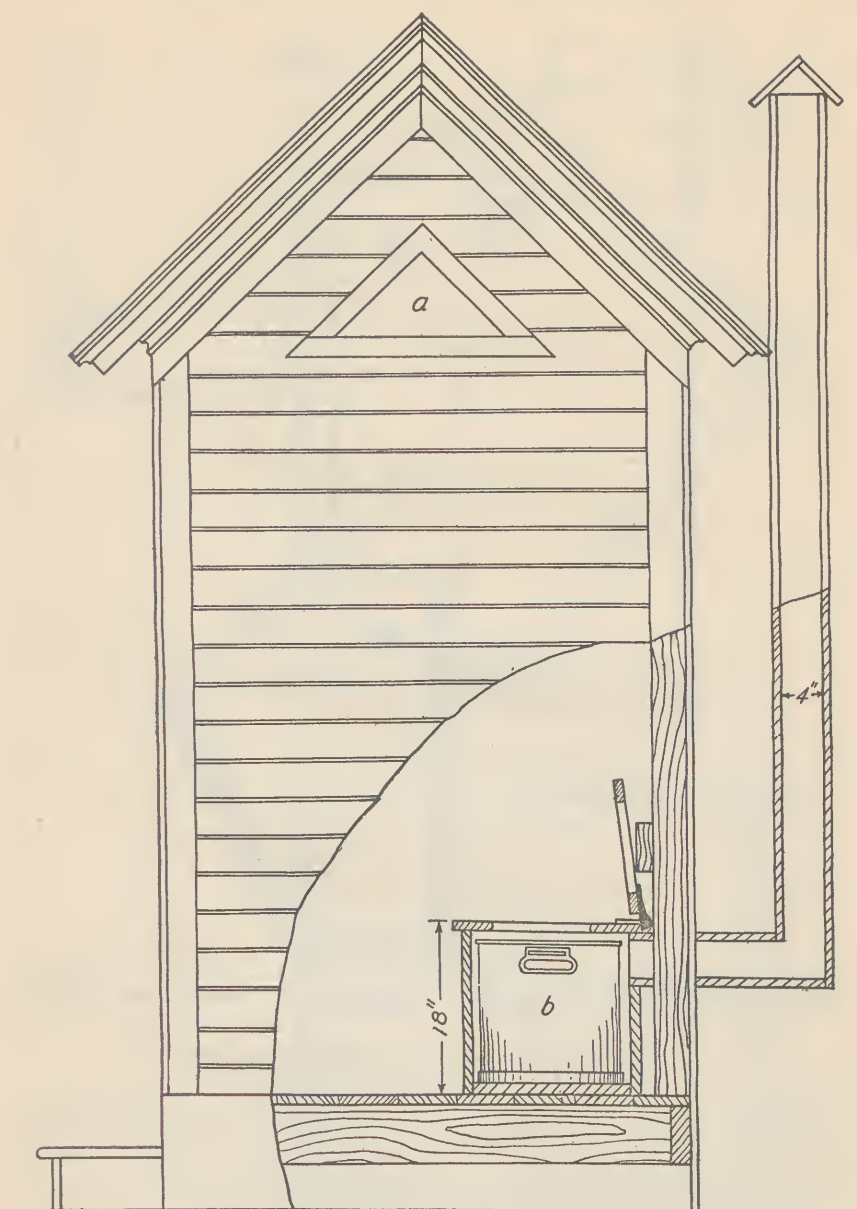


FIGURE 3.—Sketch showing installation of sanitary box in existing privy building.
a, Screen-wire vent; b, galvanized iron pail, 15 by 15 inches in size.

Fasten a block of wood inside of the back wall of privy to prevent the lid of the seat hole reaching a perfectly vertical position, thus making it self-closing.

The can for use in the sanitary box should be constructed of galvanized iron of No. 22 to No. 26 gage, and should be 15 inches in diameter and 15 inches in height. Handles should be attached to the sides of the can.

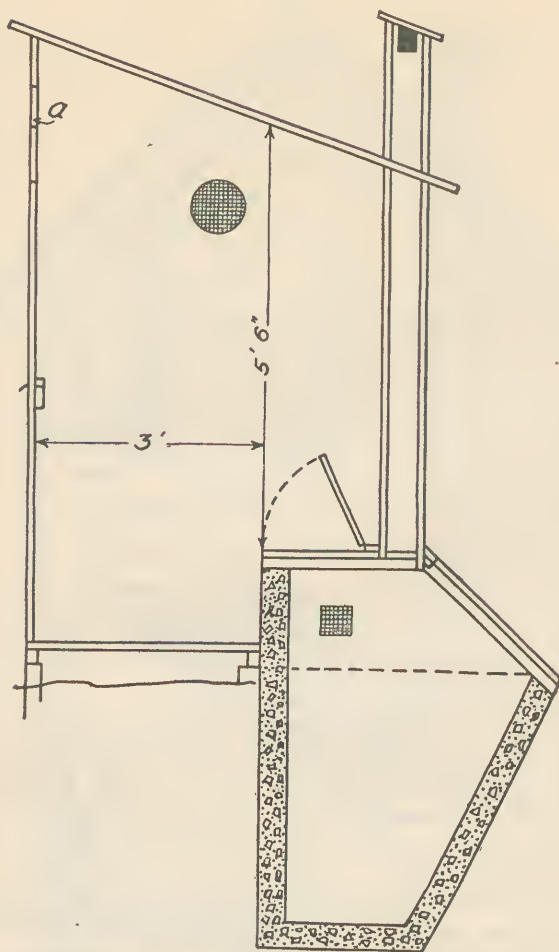


FIGURE 4.—Sketch showing house and vault of sanitary privy. Dimensions are approximate and may be varied. (a) Screened vent over door.

A CONCRETE-VAULT SANITARY PRIVY.

Figures 4, 5, and 6 show a type of privy that is recommended by the UNITED STATES PUBLIC HEALTH SERVICE. This privy has a water-tight concrete vault, and is fly-proof, well ventilated, and economical.

The concrete-vault privy has several desirable features:

1. It is permanent.
2. It requires less scavenger service.
3. It is less likely to need repairs.
4. It is especially useful in colder climates.

The concrete-vault privy is strongly recommended to companies or persons who wish lasting sanitary improvements.

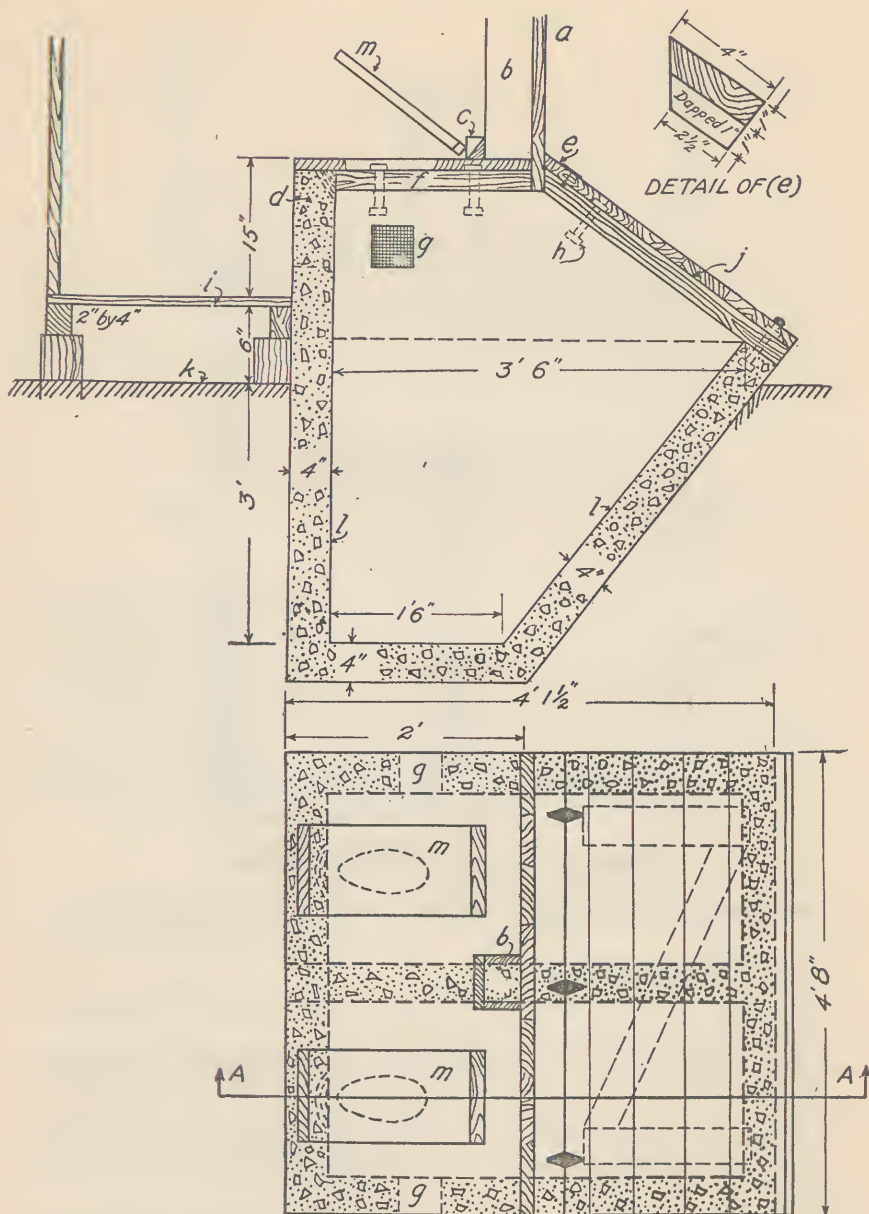


FIGURE 5.—Plan and elevation of concrete vault privy. (a) Back wall of house; (b) vent, 4 inches square, inside house, screened at bottom; (c) No. 24 gage galvanized iron hinge; (d) concrete section in front of hole-cut to 2 inches; (e) 2 by 4-inch timber extends 1 inch over walls; (f) 2 by 4-inch timber; (g) vent, 4 inches in diameter; (h) 3/4-inch anchor bolts, 8 inches long; (i) house floor; (j) door to vault, should be watertight; (k) ground line; (l) inside surface of vault, finished watertight with neat cement; (m, m) seats, 12 by 18 inches. Dimensions are approximate and may be varied.

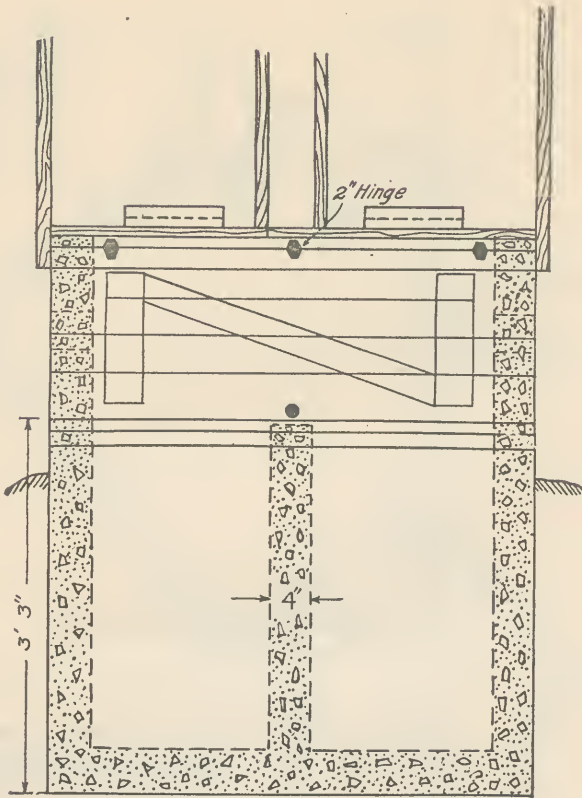


FIGURE 6.—End section of concrete-vault privy.

CONSTRUCTION OF SANITARY CONCRETE-VAULT PRIVY.

1. Study the designs carefully.
2. Dig the hole in the ground 5 inches larger than the outside dimensions of the vault.
3. Make suitable forms corresponding to the inside dimensions of the vault.
4. Pour the bottom of the vault and allow the concrete to "set."
5. Place the forms accurately in the hole, leaving a 5-inch space on all sides.
6. Pour the walls, using barbed wire for reinforcing, and put in the anchor bolts.
7. When sufficiently dry, remove the forms and plaster the inside of the vault with rich concrete to make it positively water-tight.
8. Put on a new privy seat, flue, back lid, and covers over the seat holes, all to fit fly-tight.

9. Nail screen wire over the bottom of the flue and over the inside of the three vent holes.

10. Remodel the old privy house and fit it over the vault, or build a new privy house.

MATERIALS NEEDED FOR CONSTRUCTION.

For the vault.	Lumber for seat, lids, back door, and flue.
8 sacks of cement.	50 feet, board measures, 1-inch boards.
$\frac{1}{2}$ cubic yard of sand.	One 1-inch board, 56 inches long by 12 inches wide.
1 cubic yard of gravel.	Two 2 by 4 inch timbers, 20 inches long.
8 $\frac{1}{2}$ -inch anchor bolts, 8 inches long.	Two 2 by 4 inch timbers, 31 inches long.
50 feet of barbed wire.	One 2 by 4 inch timber, 48 inches long.
	One 2 by 4 inch timber, 56 inches long.
	Two 2 by 4 inch timbers, 12 inches long.
	2 hinges for back door.
	4 hinges for seat covers.

METHOD OF USE.

Nail down one seat cover and use only one hole until the compartment is full; then nail down the seat cover over the full compartment, and use only the other side until that is full. Then the first compartment is ready for cleaning.

The advantage of this method is that the excreta has had time to dry, and is less offensive to handle. When using the privy, add a little dry earth from time to time to help absorb the moisture.

FINAL DISPOSAL OF EXCRETA.

Bury the vault contents in a shallow furrow, as far as possible from any source of water supply.

ADVANTAGES OF THIS SANITARY PRIVY.

- Flies can not gain access to the excreta.
- Filth is not scattered around the premises.
- It is easily accessible for cleaning.
- It has no disagreeable odors.
- It is cheap to install and operate.
- It prevents disease and death.

(From pamphlet used by United States Public Health Service in extra-cantonment sanitation. Chattanooga, Tenn.)

MINE RESCUE CARS OF THE BUREAU OF MINES.

The Bureau of Mines maintains eight mine rescue cars for service throughout the entire country. Each car is equipped with oxygen mine rescue apparatus (mouth breathing), first-aid cabinets, surgeon's emergency chest, safety lamps, oxygen tanks, oxygen pump, oxygen inhalator, in fact anything that might be needed at a mine disaster or for training men in first-aid or mine rescue work.

These cars are ready at a moment's notice to be rushed to a mine in event of a mine explosion, fire, or other disaster. There the crew renders all assistance possible in rescuing entrapped miners, bringing out the dead, fighting fire, and restoring the mine. During the greater part of each year the cars visit the various mining camps and towns to organize and train classes in first-aid and mine rescue. Each car has a definite territory. An attempt is made to have each car go over all of its territory at least every year or 18 months.

Some of the cars were constructed especially for the Bureau of Mines; the others were obtained by converting Pullman cars into mine rescue cars.

A mine rescue car is a complete domestic establishment in itself. About half of the car is used as a demonstration room, in which are stored the rescue machines, safety appliances and first-aid material. In the remainder of the car are the living and sleeping quarters of the crew, containing desks, closets, bathroom, typewriter and desk, and the dining room, the kitchen, and separate quarters for the cook.

The personnel of the larger cars, constructed especially for the Bureau of Mines, consists of a mining engineer in charge, surgeon (Assistant Surgeon, United States Public Health Service), foreman miner, first-aid miner, clerk, and cook. The smaller cars, the converted Pullmans, carry a foreman miner, first-aid miner, and cook.

SAFETY FIRST.

There was a young man named Bops,
Whose stope never had enough props.
When the big rock fall came
It flattened his frame;
Now his legs are both wood and he hops;
Yes, now he can't walk, he just hops.

—EDWIN HIGGINS,
Mine Safety Inspector.

Coal miners, America is looking to you to keep the home
fires burning.

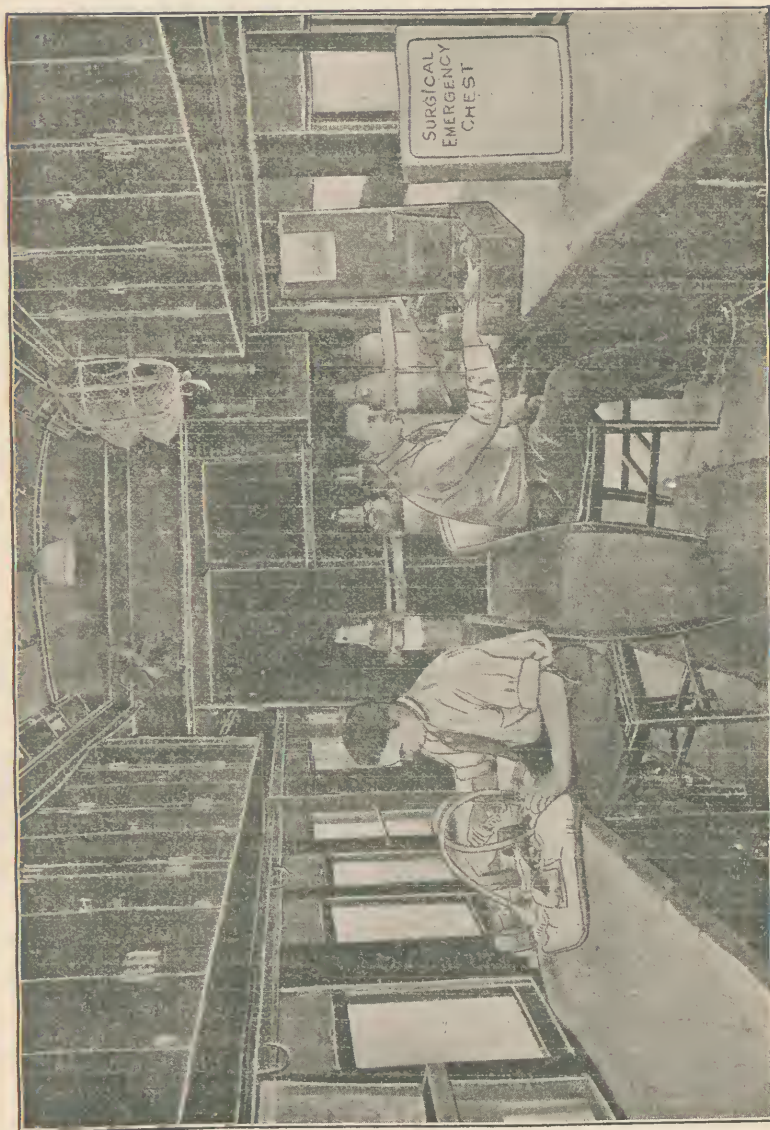


FIGURE 7.—Interior of a mine rescue car.

HEADQUARTERS OF MINE RESCUE CARS.

The following are the districts and station headquarters of the mine rescue cars of the Bureau of Mines. Communications to any one car should be addressed to the headquarters given below for that car.
In case of mine disaster, wire the Bureau of Mines, Pittsburgh, Pa.

- Car 1. District of California, Nevada, and Utah.
Headquarters, Reno, Nevada.
- Car 2. District of Colorado, Arizona, and New Mexico.
Headquarters, Raton, New Mexico.
- Car 3. District of Illinois, Indiana, Iowa, and Kentucky.
Headquarters, Evansville, Indiana.
- Car 4. District of Oklahoma, Texas, and Kansas.
Headquarters, Pittsburg, Kansas.
- Car 5. District of Montana, Idaho, Wyoming, North Dakota, and South Dakota.
Headquarters, Butte, Montana.
- Car 6. District of Pennsylvania.
Headquarters, Pittsburgh, Pennsylvania.
- Car 7. District of Michigan and Minnesota.
Headquarters, Ironwood, Michigan.
- Car 8. District of West Virginia and Virginia.
Headquarters, Huntington, West Virginia.

BUREAU OF MINES RESCUE STATIONS.

In addition to the eight mine rescue cars operated by the Bureau of Mines, there are seven rescue stations situated in important mining centers in various parts of the country. A mine rescue station is equipped with first-aid supplies, rescue apparatus, and other safety devices. A motor truck is used to transport the crew of the station and the necessary equipment to various parts of the district for the training of classes in first aid, or for rescue work at mine disasters.

The following are the rescue stations of the Bureau of Mines:

- Pittsburgh, Pennsylvania.
- McAlester, Oklahoma.
- Birmingham, Alabama.
- Jellico, Tennessee.
- Seattle, Washington.
- Urbana, Illinois.
- Norton, Pennsylvania.

Metal miners, America needs the metal you produce. Do not only your "bit," but your best.

WHAT THE BUREAU OF MINES IS DOING FOR THE MINERS AND MINING INDUSTRIES OF THE UNITED STATES AT THE PRESENT TIME.

1. Conducting a study of coal-mine explosions.
2. Investigating explosives used in mines.
3. Conducting investigations of the use of electricity in mining.
4. Studying the various lighting systems used in mines.
5. Giving instruction in first-aid training and mine rescue work.
6. Conducting special studies in the problems of health and safety for coal and metal miners.
7. Maintaining mine rescue cars for use at mine disasters.
8. Making inquiries into the waste of metals, ores, and minerals in treatment and use.
9. Conducting petroleum investigations.
10. Compiling the mining laws of the several States, and issuing bulletins on this subject.
11. Publishing miners' circulars, bulletins, and technical papers on the promotion of safety, betterment of health conditions, and maintenance of efficiency among those engaged in the mineral industries.

Cheerful compliance with food regulations is practical patriotism.

PUBLICATIONS OF THE BUREAU OF MINES.

The following publications are available for distribution and may be obtained by addressing the Director, Bureau of Mines, Washington, D. C.

BULLETINS.

BULLETIN 87. Houses for Mining Towns, by J. H. White. 1914.

BULLETIN 93. Miners' Nystagmus, by F. L. Hoffman. 1916.

BULLETIN 99. Mine Ventilation Stoppings, with Especial Reference to Coal Mines in Illinois, by R. Y. Williams. 1915.

BULLETIN 131. Approved Electric Lamps for Miners, by H. H. Clark. 1917.

BULLETIN 132. Siliceous Dust in Relation to Pulmonary Disease in the Joplin District, Missouri, by Edwin Higgins, A. J. Lanza, F. B. Laney, and G. S. Rice. 1917.

BULLETIN 139. Control of Hookworm Infection at the Deep Gold Mines of the Mother Lode, California, by J. G. Cumming and J. H. White. 1917.

TECHNICAL PAPERS.

TECHNICAL PAPER 11. The Use of Mice and Birds for Detecting Carbon Monoxide after Mine Fires and Explosions, by G. A. Burrell. 1912.

TECHNICAL PAPER 21. The Prevention of Mine Explosions, Report and Recommendations, by Victor Watteyne, Carl Meissner, and Arthur Desborough. 1912.

TECHNICAL PAPER 29. Training with Mine-Rescue Breathing Apparatus, by J. W. Paul. 1912.

TECHNICAL PAPER 33. Sanitation at Mining Villages in the Birmingham District, Alabama, by D. E. Woodbridge. 1913.

TECHNICAL PAPER 39. The Inflammable Gases in Mine Air, by G. A. Burrell and F. M. Seibert. 1913.

TECHNICAL PAPER 56. Notes on the Prevention of Gas and Dust Explosions in Coal Mines, by G. S. Rice. 1913.

TECHNICAL PAPER 77. Report of the Committee on Resuscitation from Mine Gases, by W. B. Cannon, G. W. Crile, Joseph Erlanger, Yandell Henderson, and S. J. Meltzer. 1914.

TECHNICAL PAPER 82. Oxygen Mine Rescue Apparatus and Physiological Effects on Users, by Yandell Henderson and J. W. Paul. 1917.

TECHNICAL PAPER 97. Saving Fuel in Heating a House, by L. P. Breckenridge and S. B. Flagg. 1915.

TECHNICAL PAPER 102. Health Conservation at Steel Mills, by J. A. Watkins. 1916.

TECHNICAL PAPER 103. Organizing and Conducting Safety Work in Mines, by H. M. Wilson and J. R. Fleming. 1917.

TECHNICAL PAPER 105. Pulmonary Diseases in the Joplin District, Missouri, and Its Relation to Rock Dust in the Mines, by A. J. Lanza and Edwin Higgins. 1915.

TECHNICAL PAPER 116. Miners' Wash and Change Houses, by J. H. White. 1915.

TECHNICAL PAPER 132. Underground Latrines for Miners, by J. H. White. 1916.

TECHNICAL PAPER 150. Limits of Complete Inflammability of Mixtures of Mine Gases and Industrial Gases with Air, by G. A. Burrell and A. W. Gauger. 1917.

TECHNICAL PAPER 153. Occurrence and Mitigation of Injurious Dusts in Steel Works, by J. A. Watkins. 1917.

TECHNICAL PAPER 156. Carbon Monoxide Poisoning in the Steel Industry, by J. A. Watkins. 1917.

MINERS' CIRCULARS.

MINERS' CIRCULAR 4. The Use and Care of Mine-Rescue Breathing Apparatus, by J. W. Paul. 1911.

MINERS' CIRCULAR 7. Use and Misuse of Explosives in Coal Mining, by J. J. Rutledge, with a preface by J. A. Holmes. 1913.

MINERS' CIRCULAR 10. Mine Fires and How to Fight Them, by J. W. Paul. 1912.

MINERS' CIRCULAR 12. Use and Care of Miners' Safety Lamps, by J. W. Paul. 1913.

MINERS' CIRCULAR 14. Gases Found in Coal Mines, by G. A. Burrell and F. M. Seibert. 1913.

MINERS' CIRCULAR 15. Rules for Mine-Rescue and First-Aid Field Contests, by J. W. Paul. 1913.

MINERS' CIRCULAR 20. How a Miner Can Avoid Some Dangerous Diseases, by A. J. Lanza and J. H. White. 1915.

MINERS' CIRCULAR 21. What a Miner Can Do to Prevent Explosions of Gas and of Coal Dust, by G. S. Rice. 1915.

HANDBOOKS.

Advanced First-Aid Instructions for Miners, a Report on Standardization, by a Committee of Surgeons: G. H. Halberstadt, A. F. Knoefel, W. A. Lynott, W. S. Rountree, and M. J. Shields. 1917.

Rescue and Recovery Operations in Mines After Fires and Explosions, by J. W. Paul and H. M. Wolfen. 1916.

PUBLICATIONS OF THE UNITED STATES PUBLIC HEALTH SERVICE.

The following publications of the United States Public Health Service are of interest to miners. They may be obtained by addressing the Surgeon General, United States Public Health Service, Washington, D. C.

PUBLIC HEALTH BULLETINS.

35. The Relation of Climate to the Treatment of Pulmonary Tuberculosis, by F. C. Smith. (Revised Edition, 1916.)

36. Tuberculosis: Its Nature and Prevention, by F. C. Smith. (Revised Edition, 1917.)

37. The Sanitary Privy: Its Purpose and Construction, by Prof. C. W. Stiles. 1910.

68. Safe Disposal of Human Excreta at Unsewered Homes, by L. L. Lumsden, C. W. Stiles, and A. W. Freeman. April, 1915.

69. Typhoid Fever: Its Causation and Prevention, by L. L. Lumsden. May, 1915.

70. Good Water for Farm Homes, by A. W. Freeman. May, 1915.

71. Studies in Vocational Diseases. 1. The Health of Garment Workers, by J. W. Schereschewsky. 2. The Hygienic Conditions of Illumination in Workshops of the Womens' Garment Industry, by J. W. Schereschewsky and D. H. Tuck. August, 1915.

73. Tuberculosis Among Industrial Workers: Report of an Investigation Made in Cincinnati, with Special Reference to Predisposing Causes, by D. E. Robinson and J. G. Wilson. March, 1916.

76. Health Insurance: Its Relation to the Public Health, by B. S. Warren and Edgar Sydenstricker. March, 1916.

78. Influence of Occupation on Health during Adolescence. Report of a physical examination of 679 male minors under 18 in the cotton industries of Massachusetts, by M. Victor Stafford. 1916.

81. Studies in Vocation Diseases. The Effect of Gas-Heated Appliances Upon the Air of Workshops, by Charles Weisman. September, 1916.

85. Miners' Consumption. A study of 433 cases of the disease among zinc miners in Southwestern Missouri, by A. J. Lanza, with a chapter on Roentgen-ray findings in Miners' Consumption, by Samuel B. Childs. January, 1917.

89. A Sanitary Privy System for Unsewered Towns and Villages, by L. L. Lumsden. 1917.

REPRINTS FROM PUBLIC HEALTH REPORTS.

72. Vegetables as a Possible Factor in the Dissemination of Typhoid Fever, by R. H. Creel. February 9, 1912.

76. The Necessity for Safe Water Supplies in the Control of Typhoid Fever, by A. J. McLaughlin. March 22, 1912.

100. Whooping Cough: Its Nature and Prevention. A Popular Discussion of a Widespread and Dangerous Disease for which Familiarity has Bred Contempt, by W. C. Rucker. October 25, 1912.

105. Antimalarial Measures for Farmhouses and Plantations, by Henry R. Carter. December 6, 1912.

150. The Citizen and the Public Health. The Individual's Relation to the Health of the Community, by John W. Trask. November 7, 1913.

195. Industrial Conditions: Their Relation to the Public Health, by B. S. Warren. May 29, 1914.

197. Industrial Insurance: Medical Examination of Employees and Prevention of Sickness its Proper Foundation, by J. W. Schereschewsky. June 5, 1914.

204. What is a Safe Drinking Water? by Allan J. McLaughlin. June 26, 1914.

213. Safe Ice, by Hugh S. Cumming. 1914.

221. Tuberculosis. The Financial Aspect of the Sick Leaving Home in Search of a Beneficial Climate, by Thompson Frazer, M. D., Asheville, N. C. September 18, 1914.

225. The Chemical Disinfection of Water, by Earle B. Phelps. October 9, 1914.

234. Physical Examination of Workers, by J. W. Schereschewsky. November 20, 1915.

250. Sickness Insurance: Its Relation to Public Health and the Common Welfare, by B. S. Warren. January 8, 1915.

287. The Practical Use of Disinfectants, by H. E. Hasseltine. July 2, 1915.

387. Climate and Tuberculosis. The Relation of Climate to Recovery, by John W. Trask. February 23, 1917.

SUPPLEMENTS TO PUBLIC HEALTH REPORTS.

1. Measles, by W. C. Rucker. January 24, 1913.

2. Indoor Tropics. The Injurious Effect of Overheated Dwellings, Schools, etc., by J. M. Eager. January 31, 1913.

3. Tuberculosis; Its Predisposing Causes, by F. C. Smith. February 7, 1913.

4. The Citizen and the Public Health, by A. M. Stimson. February 28, 1913.

5. Fighting Trim: The Importance of Right Living, by J. M. Eager. March 14, 1913.

7. Shower Baths for Country Houses. A Serviceable and Inexpensive Shower Bath Readily Improvised in Town or Country, by Carroll Fox. August 1, 1913.

10. The Care of the Baby. Prepared by a Committee of the American Association for the Study and Prevention of Infant Mortality and Presented to the Association at its Annual Meeting held in Washington, D. C., November 14-17, 1913.

11. What the Farmer can do to Prevent Malaria, by R. H. von Ezzdorf. February 13, 1914.

14. Diphtheria: Its Prevention and Control, by J. W. Schereschewsky. April 17, 1914.

16. The Summer Care of Infants, by W. C. Rucker and C. C. Pierce. June 19, 1914.

24. Exercise and Health, by F. C. Smith. May 7, 1915.

29. Transmission of Disease by Flies, by Ernest A. Sweet. April 14, 1916.

30. Common Colds, by W. C. Rucker. March 16, 1917.

31. Safe Milk: An Important Food Problem, by Ernest A. Sweet. May 25, 1917.